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Survey of the vascular plants of Sierra Chica, the untouched area of the Paititi Natural Reserve (southeastern Tandilia mountain range, Buenos Aires province, Argentina)

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Abstract

The Paititi Natural Reserve is located in the southeastern part of the Tandilia mountain range (Buenos Aires province, Argentina). With the aim of recording the floristic richness of Sierra Chica, an untouched area of the reserve, all vascular plants were inventoried and categorized by family, status, and life form. Altogether, 364 taxa from 72 families were found, with the most predominant families being Poaceae (20.7%), Asteraceae (20.1%), and Fabaceae (5.8%). We found 95 adventive species, 4 cosmopolitan, and 265 native. The most abundant life forms were hemicryptophytes (33.1%), therophytes (30.6%), and criptophytes (22.6%); the therophytes were mostly represented by adventive species. We also found species that were known from Buenos Aires province but not from mountainous areas. Despite being a small area within Argentina, Sierra Chica constitutes a valuable refuge for native flora of the Tandilia mountain range system, which is in danger of being affected by exotic plants.

Key words

Floristic inventory; life form; status; endemism; conservation; threatened species.

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Introduction

In the last decades, agricultural intensification (Benton et al. 2003) and urban and rural population growth (MEA 2005) have been the main causes of biodiversity decline in agricultural landscapes (Krebs et al. 1999). Fire, habitat fragmentation, introduction of exotic species, and high rates of agrochemical application have generated negative impacts on different habitats, and therefore, on the diversity of plants and animals (Frangi et al. 1980; Tscharntke et al. 2005). The province of Buenos Aires, located in the east-central region of Argentina, due to the advance of the farming frontier, does not escape this phenomenon (Bilenca and Miñarro 2004, Paruelo et al. 2005, Viglizzo et al. 2011). However, the Tandilia and Ventania mountain range systems disrupt the typical plain landscape of the province, limiting the extent of agricultural fields, and acting as biodiversity reservoirs (Fig. 1). The rocky outcrops are known hotbeds of biodiversity that allow refuge for native, endemic, and threatened species,

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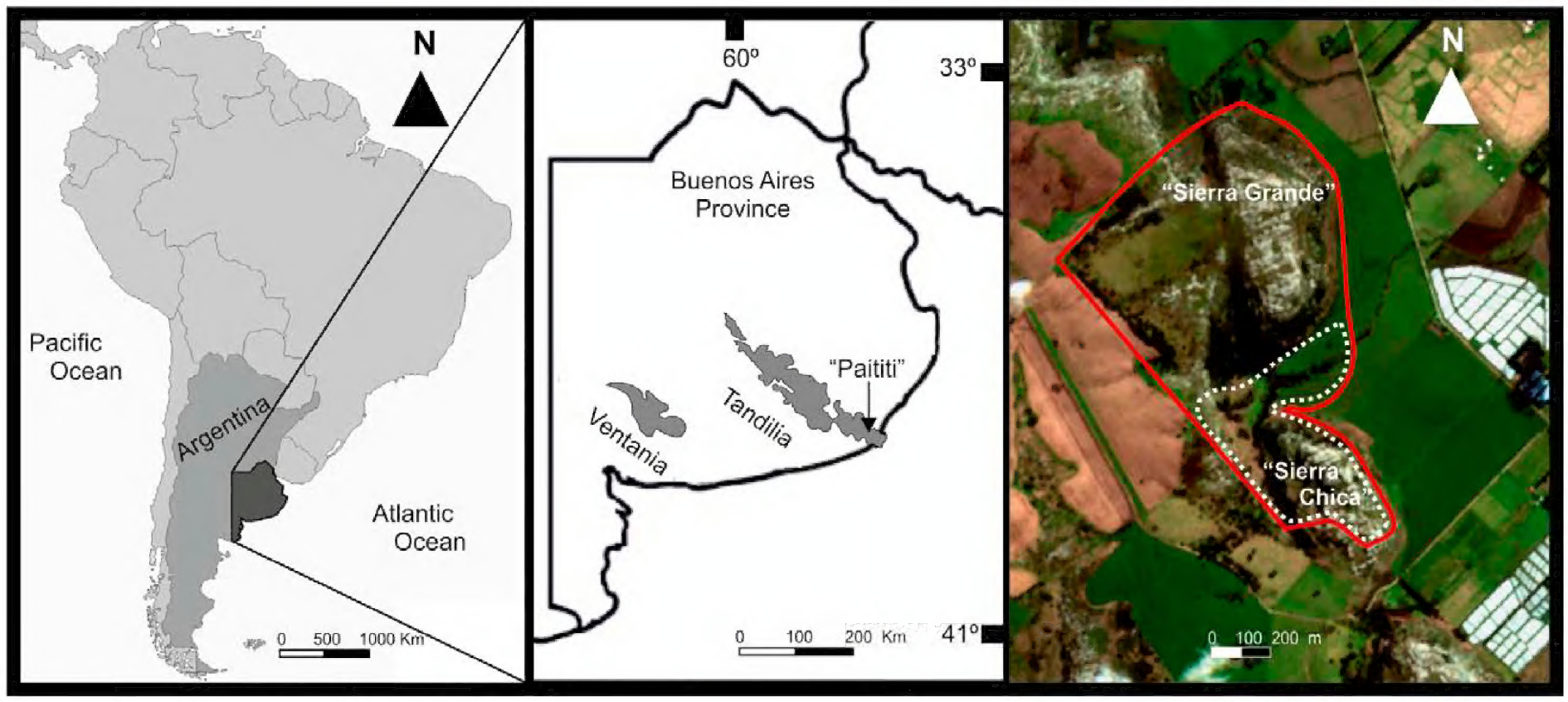

Figure 1. Location of Paititi Natural Reserve, Tandilia System of Mountain Range, Buenos Aires Province, Argentina. The area surrounded by a red line corresponds to the Paititi Natural Reserve while the area surrounded with a dotted white line corresponds to "Sierra Chica". Satellite image obtained from Sentinel Playground (Sentinel Playground, 2017).

and contribute to the conservation of these species (OPDS 2011, Cantero et al. 2014, Kristensen et al. 2014). In this regard, Bertonatti and Corcuera (2000) considered the mountain ranges as areas of outstanding biodiversity, and Bilenca and Miñarro (2004) highlighted that in Buenos Aires province, 67% of the vascular species with conservation priority can be found in Tandilia and Ventania mountain range systems.

The available information on the flora of the Tandilia system, (Frangi 1975, Valicenti et al. 2005, Escaray 2007, Alonso et al. 2009a, Kristensen et al. 2014), part of Azul, Tandil, and Balcarce counties, highlights the great value of the floristic richness (mainly native and endemic taxa) of these mountains. The Tandilia system consists of mountain ranges interrupted by valleys, which extend 350 km from the center of Buenos Aires province to its southeastern Atlantic coast (Fig. 1). Available data from surveys, herbarium materials, and floristic inventories, include 578 species and infraspecific taxa for this area (Alonso et al. 2009b). However, this number is preliminary and could substantially increase if the mountain ranges that have not been fully inventoried were studied, such as those belonging to southeast extremity of this orographic system. The Tandilia system, near Mar del Plata, is affected by anthropogenic disturbances including farming, recreational activities, infrastructure projects, and natural resource extraction, such as mining and collection of medicinal and ornamental plants. Such alterations can cause the disappearance of native or even endemic species, their replacement by foreign floristic elements and the reduction of the ecosystem services associated with these environments (Méndez 2009, OPDS 2011, Álvarez et al. 2012, Kristensen et al. 2014, Sanhueza and Zalba 2014, Echeverría et al. 2015). Because of this, it is useful to assess the biodiversity, level of endemism, and degree of degradation of southeastern Tandilia mountain range.

Estancia Paititi is a farm in the southeastern Buenos Aires province that has been considered a valuable grassland area (Bilenca and Miñarro 2004) and an area of interest for conservation and ecotourism (Chebez 2005). Estancia Paititi is divided into 2 areas: 1 of them has deep fertile soils and is dedicated to organic farming (crops and pastures), while the other has 2 rocky outcrops and is a natural reserve (Paititi Natural Reserve).

The objectives of this reserve are to work actively towards the conservation and research of natural and cultural resources and to raise awareness of the care of the environment. Since 2014, Paititi Reserve is a member of the Argentine Network of Private Natural Reserves (RARNAP 2016). The reserve was divided in 2 areas, Sierra Grande, dedicated to educational, recreational, and livestock activities, and Sierra Chica, which remains untouched, with minimal anthropic interference. The latter area is set aside for research on archeology, zoology, and botany (Fig. 1). A thorough knowledge of the flora of this reserve is essential to quantify floristic richness and to develop guidelines for future studies and conservation programs. With this aim, a floristic survey of Sierra Chica, the untouched area of Paititi Natural Reserve, was done.

Methods

Study site. Paititi Natural Reserve (37°54′00″ S, 057°49′00″ W; geodetic datum WGS84) is located at the southeast edge of La Peregrina mountain range, General Pueyrredón county, Buenos Aires province, Argentina. These rocky outcrops belong to the Tandilia mountain range system that traverses the province of Buenos Aires from its center to the southeast (Fig. 1). The mountains are mainly composed by orthoquartzites from the Lower Paleozoic, established over a Precambrian crystalline basement (Teruggi and Kilmurray 1980). Surrounding these mountains, the soil matrix is formed by various

geological materials resulting from loess deposition during the late Cenozoic. The reserve is located in the Pampeana Phytogeographical Province (Pampeano Austral District), which is characterized by the presence of a climax grassland community (*Bothriochloa laguroides, Nassella neesiana, Jarava plumosa, Piptochaetium montevidense* and *Aristida murina*), bunches of Tussock Paspalum (*Paspalum quadrifarium*), and shrubs (*Baccharis dracunculifolia* ssp. *tandilensis, Colletia paradoxa*, and *Dodonaea viscosa*) (Cabrera and Zardini 1978). The climate is subhumid-humid, temperate-cold in winter and temperate-warm in summer, with a mean annual temperature of 14 °C, and with maximum temperatures reaching 32 °C, and minimum temperatures around 0 °C. In winter, frosts occur and sometimes it snows. The annual rainfall is around 850 mm and although the rains are distributed throughout the year, they are most intense in winter and scarce during the summer (Falasca et al. 2000, INTA 2016). The Paititi reserve covers an area of 220 ha (RARNAP 2016) of which 40 ha are part of Sierra Chica. This is a rocky outcrop separated from Sierra Grande by a watercourse that originates in the hills of an adjoining property and whose route is accompanied by an arboreal stratum. Sierra Chica has an altitudinal range of 88 to 156 m above sea level. The summits and upper slopes of this mountain are variously shaded and with variable soil depth, ranging from shallow (<10 cm) to deep (>60 cm). Deep soils allow the growth of trees and shrubs (Fig. 2).

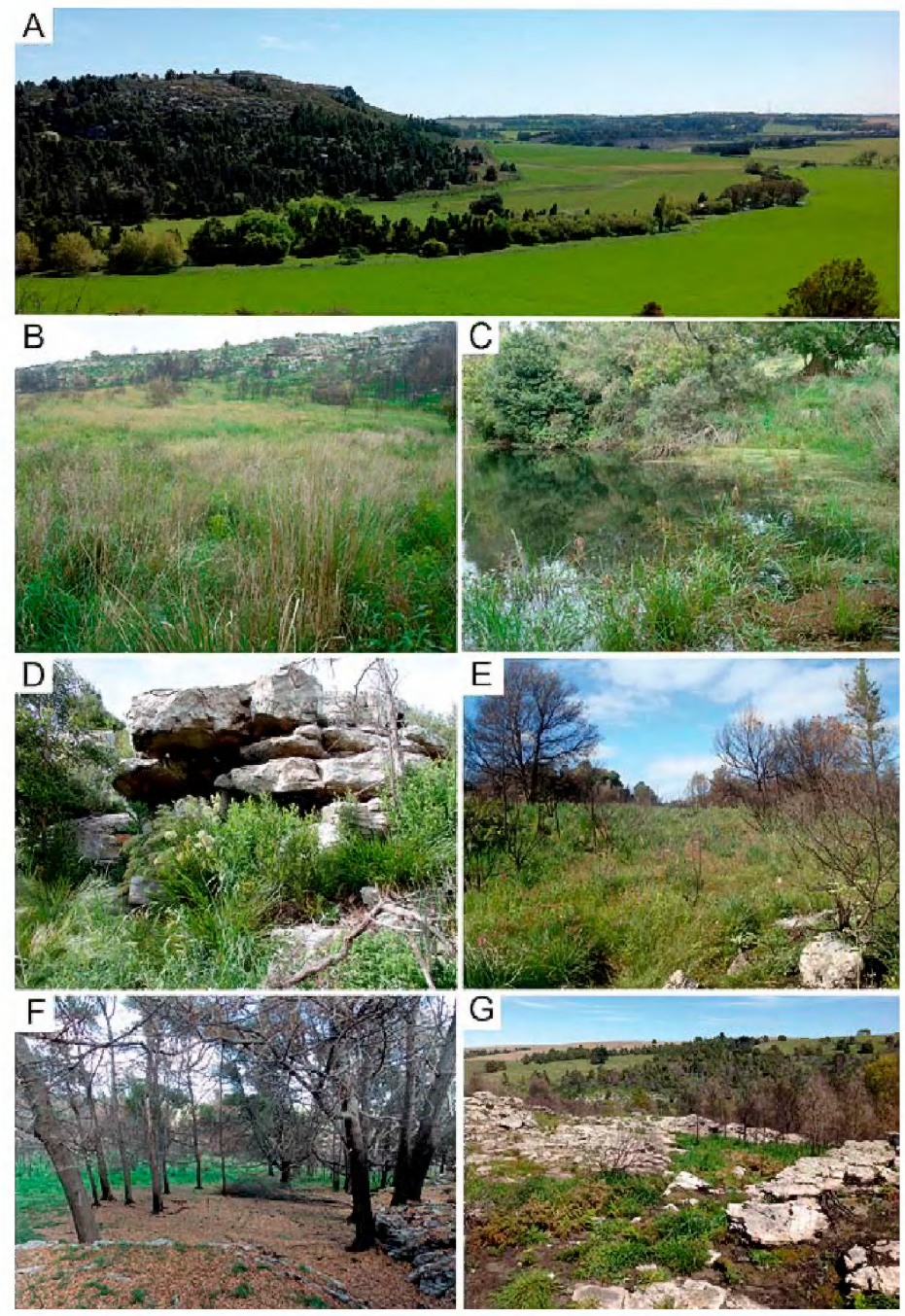

Figure 2. Study area. **A.** Overview of the Paititi Natural Reserve. **B.** Grassland area. **C.** Stream area. **D.** Mountain range slope area. **E.** Middle mountain range area. **F.** Acacias area. **G.** Mountain range summit area.

Data collection and analysis. A thorough survey of vascular plants was made from December 2013 to June 2015 in Sierra Chica. Surveys were held every 2–3 weeks from spring to autumn, and every 4 weeks in winter, covering the periods of flowering and fructification of the different plant entities. After collecting reference plant material, the specimens were identified based on the following: *Flora de la provincia de Buenos Aires* (Cabrera 1963, 1965a, 1965b, 1967, 1968, 1970), *Flora Rioplatense* (Hurrell 2009a, 2013), and *Flora Argentina* (Al-Shehbaz and Salariato 2012, Múlgura et al. 2012, Zuloaga et al. 2012a, 2012b, Barboza 2013, Zuloaga et al. 2014a, 2014b). The vascular plants were classified into subclasses and superorders following Chase and Reveal (2009). Families within subclasses and superorders were according to Christenhusz et al. (2011a, 2011b) for fern and gymnosperms, respectively, and the classification system of The Angiospermae Phylogenetic Group IV (2016), for the angiosperms. Species names were updated based on the Flora Argentina database (http://www.floraargentina.edu.ar/). This database was also used to determine species' status as native (species naturally occurring in the area), adventive (exotic species, with natural introduction or mediated by humans), and cosmopolitan (species that are widely distributed). Within native category, species were classified in 3 groups according to their distribution range: species of wide distribution in the American continent, species exclusively of the Southern Cone Region of South America, and species endemic to mountain ranges of Buenos Aires province (Flora Argentina 2017). Species were also classified according to their type of habitat (terrestrial, aquatic floating, and aquatic marshy) and life form (therophytes, hemicryptophytes, cryptophytes, chamaephytes, lianas, epiphytes, and phanerophytes) (Raunkiaer 1934). Those species that were considered to be threatened by Delucchi (2006), according to the *IUCN Red List Categories and Criteria*, were noted. Reference specimens were deposited in the BAL Herbarium (E.E.A. Balcarce, Instituto Nacional de Tecnología Agropecuaria Balcarce, Buenos Aires, Argentina).

Forty-two species were described; these include 1 species with an uncertain identification, others that are newly recorded in Buenos Aires mountain ranges, and the rest that are native species (including endemic species) that, according to Delucchi (2006), are threatened. However, those newly recorded species that are frequently described in the literature as alien or native weeds, ornamental trees, fruit shrubs, forage plants, or typical members of watercourses or ponds of the province are not described.

For each of these 42 described species, their abundance was estimated at the sites where each was most frequently found: rare = fewer than 5 sites; infrequent = 5–9 sites; frequent = 10–15 sites; very frequent ≥16 sites.

Table 1. Vascular species of the untouched area of the Sierra Chica of the Paititi Natural Reserve (Tandilia mountain range system, Argentina) and synonyms more frequently used in the area. Families are sorted alphabetically within each subclass. The superorder (Chase and Reveal, 2009), is mentioned in parenthesis after the family as: AST = Asteranae; CAR = Caryophyllanae; LIL = Lilianae; MAG = Magnolianae; RAN = Ranunculanae; ROS = Rosanae; SAX = Saxifraganae. This table also shows status (Na = native, Co = cosmopolitan, Ad = adventive), and distribution boundaries of the native species (AC = American continent, SC = Southern Cone Region of South America, BA = mountain ranges of Buenos Aires province), threatened species according to Delucchi (2006) = #, life form "LF" (T = therophytes, C = cryptophytes, Ch = chamaephytes, P = phanerophytes, H = hemicryptophytes, L = lianas, E = epyphytes), type of habitat "Hab" (Ter = terrestrial, Fl = aquatic floating, Ma = aquatic marshy), location "Loc" (see Figure 3 and Table 2), references of the presence of each species in the mountain ranges of Buenos Aires province "Ref P" and references used for species identification "Ref I" (1 = Cabrera 1968, 2 = Cabrera 1970, 3 = Cabrera 1967, 4 = Cabrera 1965a, 5 = Cabrera 1965b, 6 = Cabrera 1963, 7 = Zuloaga et al. 2012 a, 8 = Zuloaga et al. 2012 b, 9 = Zuloaga et al. 2014 a, 10 = Zuloaga et al. 2014b, 11 = Múlgura et al. 2012, 12 = Barboza 2013, 13 = Hurrell 2009a, 14 = Grondona 1948, 15 = Hurrell 2013, 16 = Ariza Espinar 2005, 17 = Flora Argentina 2017, 18 = Azevedo-Gonçalves & Matzenbacher 2006, 19 = Dimitri 1978, 20 = Al-Shehbaz & Salariato 2012, 21 = Calviño & Martinez 2007, 22 = Frangi 1975, 23 = Alonso et al., 2009a, 24 = Escaray 2007, 25 = Valicenti et al. 2005, 26 = Long y Grassini 1997;¸27 = Álvarez et al. 2012, 28 = Valicenti et al. 2000, 29 = Frangi & Bottino 1995), voucher collectors "Voucher" (A = S.I. Alonso, C = V.M. Comparatore, E = M.L. Echeverría, CL = A.M. Clausen, NU = M.C. Nuciari, LM = L. Montes, V = C.B. Villamil, O = K.A. Okada, FCA s/n = without number, donated by the Identification Species Service of the FCA, UNMdP) and the BAL Herbarium number "BAL" within parenthesis. The "ACE" (Alonso S.I., Comparatore V.M. and Echeverría M.L.) and "E" (Echeverría M.L.) collections belong to the Paititi Reserve.

Taxon	Status, #	LF	Hab	Loc	Ref P	Ref I	Voucher and BAL
Subclass Polypodiae							
Azollaceae							
Azolla filiculoides Lam.	Na, AC	T	Fl	1	28	1, 17	ACE 3990 (8221)
Blechnaceae							
Blechnum australe L. ssp. *auriculatum* (Cav.) de la Sota (=*B. auriculatum* Cav.)	Na, SC	C	Ter	18	1	1, 17	ACE 4011 (8222), A 844 (109)
Dennstaedtiaceae							
Pteridium arachnoideum (Kaulf.) Maxon (=*P. aquilinum* (L.) Kuhn var. *arachnoideum* (Kaulf.) Herter)	Na, AC	C	Ter	21	1	1, 17	ACE 3646 (8223), A 842 (295)
Dryopteridacea							
Polystichum montevidense (Spreng.) Rosenst.	Na, AC	C	Ter	15	1	1, 17	O 6608 (4054), FCA s/n (6173)
Rumohra adiantiformis (G. Forst.) Ching	Na, AC	C	Ter	15	22	1, 17	ACE 4114 (8830), O 3132 (4062)
Pteridaceae							
Adiantum raddianum C. Presl	Na, AC / #	C	Ter	3	1	1, 17	ACE 4012 (8224), FCA s/n (7273)
Cassebeera triphylla (Lam.) Kaulf. (=*Doryopteris tryphylla* (Lam.) Christ.	Na, AC	C	Ter	13	1	1, 17	ACE 4085 (8829), O 1627 (4056)
Pellaea ternifolia (Cav.) Link	Na, AC	C	Ter	20	1	1, 17	ACE 3490 (8225), O 6607 (4052)
Woodsiaceae							
Woodsia montevidensis (Spreng.) Hieron.	Na, AC	C	Ter	11	1	1, 17	ACE 3651 (8226), A 855 (108)
Subclass Pinidae							
Pinaceae							
Pinus radiata D. Don	Ad	P	Ter	20	26	19	ACE 4027 (8227), FCA s/n (6260)
Pinus sylvestris L.	Ad	P	Ter	10	No	19	ACE 3935 (8228)
Subclass Magnoliidae (Dicotyledon species)							
Acanthaceae (AST)							
Stenandrium dulce (Cav.) Nees (=*S. trinerve* Nees)	Na, AC	H	Ter	13	26	5, 17	ACE 3752 (8229), NU 403 (2280)
Adoxaceae (AST)							
Sambucus australis Cham. & Schltdl.	Na, AC	P	Ter	3	No	5, 17	ACE 4115 (8822), Alo 1186 (627)
Amaranthaceae (CAR)							
Alternanthera philoxeroides (Mart.) Griseb. f. *philoxeroides*	Na, AC	H	Fl	1	No	3, 17	ACE 4000 (8230), A 761 (285)
Amaranthus hybridus L. ssp. *hybridus* (=*A. quitensis* Kunth)	Ad	T	Ter	3	No	3, 17	ACE 3593 (8231), O 1555 (4697)
Gomphrena perennis L. var. *perennis*	Na, AC	H	Ter	13	22	3, 17	ACE 3491 (8233), LM 696 (724)
Pfaffia gnaphalioides (L. f.) Martius	Na, AC	H	Ter	13	3	3, 17	ACE 3669 (8232), NU 818 (3055)
Apiaceae (AST)							
Ammi majus L.	Ad	T	Ter	7	23	4, 15	ACE 3671 (8234), O 5313 (4111)
Bowlesia incana Ruiz & Pav.	Na, AC	T	Ter	7	26	4, 17	O 4113 (4083), FCA s/n (7068)
Conium maculatum L.	Ad	T	Ter	8	25	4, 17	ACE 3680 (8235), O 3317 (4093)
Cyclospermum leptophyllum (Pers.) Sprague (=*Apium leptophyllum* (Pers.) Muell.)	Na, AC	T	Ter	8	23	4, 17	ACE 4075 (8823), O 2442 (4096)
Eryngium elegans Cham. & Schltdl.	Na, AC	H	Ter	14	22	4, 17	ACE 3885 (8236), NU 205 (6111)
Eryngium horridum Malme	Na, AC	H	Ter	11	22	4, 17	ACE 3624 (8237), O 1461 (4066)
Eryngium nudicaule Lam.	Na, AC	H	Ter	18	22	4, 17	ACE 3664 (8238), O 1696 (4069)
Eryngium regnellii Malme	Na, AC	H	Ter	11	21	17, 21	ACE 4031 (8239)
Eryngium serra Cham. & Schltdl.	Na, SC/ #	H	Ter	14	22	4, 17	ACE 3611b (8240), O 2319 (4078)
Foeniculum vulgare Mill.	Ad	H	Ter	11	24	4, 17	ACE 3673 (8241), O 1700 (4084)
Hydrocotyle bonariensis Lam.	Na, AC	H	Ma	4	22	4, 17	ACE 4103 (8824), LM 431 (767)
Apocynaceae (AST)							
Araujia sericifera Brot. (=*A. hortorun* Fournier)	Na, AC	L	Ter	7	23	5, 17	ACE 3953a (8242)
Oxypetalum solanoides Hook. & Arn.	Na, AC	Ch	Ter	11	23	5, 17	ACE 3848 (8243), NU 694 (2853)

Table 1. *Continued.*

Taxon	Status, #	LF	Hab	Loc	Ref P	Ref I	Voucher and BAL
Araliaceae (AST)							
Hedera helix L.	Ad	L	Ter	2	26	4, 17	ACE 3687 (8244), FCA s/n (6031)
Asteraceae (AST)							
Acanthostyles buniifolius (Hook. & Arn.) R. M. King & H. Rob. (=*Eupatorium buniifolius* Hooker et Arnot)	Na, AC / #	P	Ter	11	6	6; 9, 17	ACE 4021 (8245), A 775 (292)
Achyrocline satureioides (Lam.) DC.	Na, AC	Ch	Ter	17	6	6, 9, 17	ACE 4074 (8825), V 4021 (2441)
Ambrosia tenuifolia Spreng.	Na, AC	Ch	Ter	8	23	6, 9, 17	ACE 3608 (8246), LM 707 (695)
Arctium minus (Hill) Bernh.	Ad	T	Ter	3	No	6, 9, 17	ACE 4001 (8247), A 704 (327)
Baccharis articulata (Lam) Pers.	Na, AC	P	Ter	9	22	6, 9, 16, 17	ACE 4077 (8248), O 3205 (3296)
Baccharis crispa Spreng.	Na, AC	Ch	Ter	19	6	6, 9, 16, 17	ACE 3628 (8518), O 2515 (3293)
Baccharias coridifolia DC.	Na, AC	P	Ter	11	22	6, 9, 16, 17	ACE 4034 (8249), A 868 (356)
Baccharis dracunculifolia DC. ssp. *tandilensis* (Speg.) Giuliano (=*B. tandilensis* Speg.)	Na, BA/#	P	Ter	11	6	6, 9, 17	ACE 4078 (8250), O 2547 (3312)
Baccharis glutinosa Pers. (=*B. pingrae* DC var. *pingrae*)	Na, AC	C	Ter	4	23	6, 9, 16, 17	ACE 4072 (8812), V 3802 (2448)
Baccharis linearifolia (Lam.) Pers. ssp. *linearifolia* (=*B. rufescens* Sprengel var. *ventanicola* Cabrera)	Na, AC	Ch	Ter	9	6	6, 9, 17	ACE 4080 (8813), O 1678 (3305)
Berroa gnaphalioides (Less.) Beauverd	Na, AC	H	Ter	13	No	6, 9, 15, 17	ACE 3879 (8251), O 1915 (3285)
Bidens subalternans DC. var. *subalternans*	Na, AC	T	Ter	3	No	6, 17	ACE 3691 (8252), LM 968 (2233)
Campovassouria cruciata (Vell.) R. M. King & H. Rob. (=*Eupatorium bupleurifolium* DC)	Na, AC	P	Ter	16	6	6, 9, 17	ACE 4053 (8253), LM 705 (722),
Campuloclinium macrocephalum (Less.) D. C. (=*Eupatorium macrocephalum* Less.)	Na, AC	H	Ter	14	6	6, 9, 17	E 143 (8254), CL 929 (2105)
Carduus acanthoides L.	Ad	T	Ter	20	23	6, 9, 17	ACE 4083 (8837), A 609 (186)
Carduus pycnocephalus L.	Ad	T	Ter	3	23	6, 9, 17	ACE 4055 (8255), NU 802 (2999)
Carthamus lanatus L.	Ad	T	Ter	7	No	6, 9, 17	ACE 4084 (8826), A 835 (293)
Centaurea calcitrapa L.	Ad	T	Ter	7	22	6, 9, 17	ACE 4087 (8827), A 1079 (528)
Chaptalia exscapa (Pers.) Baker var. *exscapa*	Na, AC	H	Ter	13	26	6, 17	A 1173 (5454), A 1173 (825)
Chaptalia piloselloides (Vahl) Baker	Na, SC	H	Ter	13	22	6, 17	ACE 4037 (8256)
Chromolaena hirsuta (Hook. & Arn.) R. M. King & H. Rob. (=*Eupatorium subhastatum* Hooker & Arnott)	Na, SC	H	Ter	14	6	6, 9, 17	ACE 3465 (8257), A 872 (741)
Chromolaena squarrulosa (Hook. & Arn.) R. M. King & H. Rob. (=*Eupatorium squarrulosum* Hooker et Arnott)	Na, SC/ #	H	Ter	14	6	6, 9, 17	E 187 (8258), A 875 (755)
Chrysolaena flexuosa (Sims) H. Rob. (=*Vernonia flexuosa* Sims)	Na, AC	H	Ter	14	22	6, 10, 17	ACE 4150 (8259), A 829 (890)
Cirsium vulgare (Savi) Ten.	Ad	T	Ter	12	23	6, 9, 17	ACE 4088 (8826), A 516 (188)
Conyza bonariensis (L.) Cronquist var. *angustifolia* (Cabrera) Cabrera	Na, AC	T	Ter	19	No	6, 9, 16, 17	ACE 4040b (8260)
Conyza bonariensis (L.) Cronquist var. *bonariensis* Colla	Na, AC	T	Ter	11	24	6, 9, 16, 17	4040a (8261), O 1663 (3053)
Conyza sumatrensis (Retz.) E. Walker var. *leiotheca* (S. F. Blake) Pruski & G. Sancho (=*C. floribunda* H.B.K.)	Na, AC	T	Ter	11	24	6, 9, 16, 17	ACE 4039 (8262)
Conyza sumatrensis (Retz.) E. Walker var. *sumatrensis* (=*Conyza bonariensis* (L.) Cronquist var. *microcephala* (Cabrera) Cabrera)	Na, AC	T	Ter	19	No	6, 9, 16, 17	ACE 4058 (8263)
Cotula australis (Sieber *ex* Spreng.) Hook. F.	Ad	T	Ter	3	No	6, 9, 15, 17	O 6931 (4732), O 6931 (4732)
Crepis capillaris (L.) Wallr.	Ad	T	Ter	17	24	6, 17	ACE 4056 (8264), O 1471 (3072)
Criscia stricta (Spreng.) Katinas (=*Trixis stricta* Less.)	Na, AC	H	Ter	13	6	6, 17	ACE 4090 (8836), O 2256 (3121)
Cynara cardunculus L.	Ad	H	Ter	18	23	6, 9, 17	ACE 4091 (8835), FCA s/n (5455)
Facelis retusa (Lam.) Sch. Bip.	Na, AC / #	T	Ter	13	22	6, 9, 15, 17	O 4705 (3099), O 4705 (3099)
Galinsoga parviflora Cav.	Na, AC	T	Ter	3	No	6, 17	ACE 3666 (8265), FCA s/n (5490)
Gamochaeta americana (Mill.) Wedd	Na, AC	T	Ter	18	15	6, 9, 15, 17	ACE 3900 (8266)
Gamochaeta argentina Cabrera	Na, SC	T	Ter	15	6	6, 9, 15, 17	ACE 3186 (8267), A 1445 (2306)
Gamochaeta coarctata (Willd.) Kerguélen (=*G. spicata* Cabrera)	Na, AC	H	Ter	13	23	6, 9, 15, 17	ACE 3552 (8268), O 1867 (3268)
Gamochaeta falcata (Lam.) Cabrera	Na, AC	H	Ter	11	No	6, 9, 15, 17	ACE 3616 (8269)
Gamochaeta filaginea (D.C.) Cabrera	Na, SC	H	Ter	18	22	6, 9, 15, 17	ACE 3938 (8270), O 2624 (3276)
Gamochaeta pensylvanica (Willd.) Cabrera (=*G. platensis* (Cabrera) Cabrera)	Na, AC / #	H	Ter	21	No	6, 9, 15, 17	ACE 3182 (8271), O 2258 (3274)
Gamochaeta simplicicaulis (Willd. *ex* Spreng.) Cabrera	Na, AC	T	Ter	13	No	6, 9, 15, 17	ACE 3901 (8272), FCA s/n (5497)
Gamochaeta stachydifolia (Lam.) Cabrera	Na, AC	H	Ter	15	6	6, 9, 15, 17	ACE 3184 (8273), CL 194 (2329)
Gyptis tanacetifolia (Gillies *ex* Hook. & Arn.) D. J. N. Hind & Flann (=*Eupatorium tanacetifolium* Gill.)	Na, SC	H	Ter	13	6	6, 9, 17	ACE 4101 (8831), A 739 (333)
Helianthus annuus L.	Ad	T	Ter	4	No	6, 17	A 663 (383), A 663 (383)
Helminthotheca echioides (L.) Holub. (=*Picris echioides* L.)	Ad	T	Ter	7	No	6, 15, 17	ACE 4109 (8832), O 1524 (3169)
Hieracium tandilense Sleumer	Na, BA/ #	C	Ter	15	6	6, 15, 17	ACE 3933a (8274), NU 538 (2120)
Hypochaeris chillensis (Kunth) Hieron. (=*H. tweediei* Cabr.)	Na, AC	H	Ter	11	24	6, 15, 17	ACE 3983 (8275), O 2272 (3359)
Hypochaeris neopinnatifida Azevédo-Gonçalves & Matzenb. (=*H. rosengurttii* var. *pinnatifida* Cabr.)	Na, SC/ #	H	Ter	10	6	6, 17, 18	ACE 3764 (8276), O 4659 (3347)
Hypochaeris pampasica Cabrera	Na, SC/ #	H	Ter	11	24	6, 15, 17	ACE 3852 (8277),NU 502 (5524)
Hypochaeris radicata L.	Ad	H	Ter	11	22	6, 15, 17	ACE 3980 (8278), A 592 (386)
Hysterionica pinifolia (Poir.) Baker	Na, AC	C	Ter	13	6	6, 9, 17	E 146 (8279), LM 697 (719)

Table 1. *Continued.*

Taxon	Status, #	LF	Hab	Loc	Ref P	Ref I	Voucher and BAL
Lactuca serriola L.	Ad	T	Ter	18	23	6, 9, 17	ACE 3187 (8280), A 821 (547)
Lucilia acutifolia (Poir.) Cass.	Na, AC	H	Ter	13	6	6, 9, 15, 17	E 136 (8281), NU 812 (3009)
Micropsis sphatulata (Pers.) Cabrera	Na, AC	T	Ter	18	No	6, 9, 15, 17	ACE 3906 (8282), A 1447 (2308)
Panphalea heterophylla Less.	Na, AC	T	Ter	18	6	6, 17	O 3227 (3166), FCA s/n (5550)
Podocoma hirsuta (Hook. & Arn.) Baker	Na, AC	C	Ter	8	6	6, 9, 16, 17	ACE 3467 (8283), CL 1119 (6830)
Pseudognaphalium gaudichaudianum (DC.) Anderb. (=*Gnaphalium gaudichaudianum* DC)	Na, AC	T	Ter	15	24	6, 9, 15, 17	ACE 3936a (8284), LM 955 (2720)
Pterocaulon cordobense Kuntze	Na, AC	H	Ter	11	No	6, 15, 17	E 139 (8365)
Senecio grisebacchii Baker var. *subincanus* Cabrera	Na, SC	Ch	Ter	20	22	6, 10, 15, 17	ACE 3893 (8285), A 1226 (5591)
Senecio madagascariensis Poir. (=*S. burchelli* DC)	Ad	Ch	Ter	18	23	6, 10, 15, 17	ACE 4116 (8833), LM 649 (5592)
Senecio selloi (Spreng.) DC.	Na, SC/ #	Ch	Ter	21	22	6, 10, 15, 17	ACE 4117 (8834), V 3576 (2540)
Senecio vulgaris L.	Ad	T	Ter	13	No	6, 10, 15, 17	ACE 3642 (8286), NU 48 (366)
Silybum marianum (L.) Gaertn	Ad	T	Ter	19	23	6, 9, 15, 17	O 4167 (3128), FCA s/n (5604)
Solidago chilensis Meyen	Na, AC	C	Ter	8	23	6, 9, 16, 17	ACE 4120 (8835), NU 379 (5605)
Soliva sessilis Riuz & Pav. (=*S. pterosperma* Less.)	Na, AC	T	Ter	13	22	6, 9, 15, 17	ACE 3805 (8287), O 3204 (3239)
Sommerfeltia spinulosa (Spreng.) Less.	Na, SC/ #	Ch	Ter	18	6	6, 9, 17	ACE 3486 (8288), O 3138 (3250)
Sonchus asper (L.) Hill	Ad	T	Ter	18	25	6, 9, 15, 17	O 3134 (4098), ACE 4148 (8289)
Sonchus oleraceus L.	Ad	T	Ter	18	24	6, 9, 15, 17	ACE 4121 (8806), A 1243 (756)
Stevia satureiifolia (Lam.) Sch. Bip. *ex* Klotzsch var. *patagonica* Hieron.	Na, SC/ #	Ch	Ter	13	6	6, 9, 17	E 147 (8290), CL 1055 (2810)
Symphyotrichum squamatum (Spreng.) G. L. Nesom (=*Aster squamatus* Hieron.)	Na, AC	C	Ter	10	23	6, 9, 16, 17	ACE 4076 (8836), NU 496 (5381)
Tagetes minuta L.	Na, AC	T	Ter	7	26	6, 17	ACE 4122 (8291), O 1557 (3127)
Taraxacum officinale F. H. Wigg.	Ad	H	Ter	3	24	6, 9, 17	ACE 4123 (8840), O 4092 (3123)
Xanthium spinosum L.	Na, AC	T	Ter	7	26	6, 17	ACE 4126 (8838), O 1559 (3316)
Boraginaceae (AST)							
Echium plantagineum L.	Ad	T	Ter	8	23	5, 17	E 138 (8292), O 1556 (4429)
Brassicaceae (ROS)							
Brassica rapa L. (= *B. campestris* L.)	Ad	T	Ter	7	No	3, 20	ACE 4081 (8839), A 582 (57)
Cardamine chenopodiifolia Pers.	Na, AC	T	Ma	4	3	3, 20	ACE 3607 (8293), LM 836 (750)
Hirschfeldia incana (L.) Lagr.-Foss.	Ad	T	Ter	7	26	3, 20	ACE 3698 (8294), O 4164 (3382)
Lepidium bonariense L.	Na, AC	T	Ter	11	23	3, 20	ACE 3810 (8295), CL 279 (5977)
Lepidium didymum L. (=*Coronopus didymus* (L.) Smith)	Na, AC	T	Ter	13	26	3, 20	ACE 3602 (8296), O 4118 (3432)
Lepidium tandilense Boelcke	Na, SC/ #	T	Ter	11	24	3, 20	ACE 3641a (8297), FCA s/n (5983)
Nasturtium officinale W. T. Aiton (=*Rorippa nasturtium-aquaticum* (L.) Hayek)	Ad	H	Ma	14	22	3, 20	O 4191 (3408), CL 41 (5986)
Raphanus sativus L.	Ad	T	Ter	17	25	3, 20	O 4158 (3368), CL 49 (5988)
Rapistrum rugosum (L.) All. ssp. *rugosum*	Ad	T	Ter	3	No	3, 20	ACE 3670 (8298), O 1531 (3409)
Sisymbrium officinale (L.) Scop.	Ad	T	Ter	3	26	3, 20	ACE 4118 (8841), A 1449 (2302)
Cactaceae (CAR)							
Gymnocalycium gibbosum (Haw.) Pfeiff. *ex* Mittler	Na, SC/ #	H	Ter	20	4	4, 17	ACE 4100 (8810)
Campanulaceae (AST)							
Triodanis perfoliata (L.) Nieuwl. ssp. *biflora* (Ruiz & Pav.) Lammers (=*T. biflora* (Ruiz & Pavon) Greene)	Na, AC	T	Ter	8	24	5, 17	O 5191 (4466), O 4742 (4465)
Wahlenbergia linarioides (Lam.) A. DC.	Na, AC	H	Ter	13	5	5, 17	ACE 3858 (8299), Nu 326 (2278)
Caryophyllaceae (CAR)							
Cerastium glomeratum Thuill.	Ad	T	Ter	11	22	3, 17	ACE 3170 (8300), Alo 1473 (7076)
Cerastium mollissimum Phil. var. *mollissimum*	Na, AC	H	Ter	11	3	3, 17	ACE 3783 (8301), O 4136 (4262)
Paronychia brasiliana DC.	Na, AC	H	Ter	11	26	3, 17	ACE 3770 (8302), Alo 1430 (2200)
Silene antirrhina L. var. *antirrhina*	Ad	T	Ter	11	3	3, 17	ACE 3781 (8303), O 2260 (4267)
Silene gallica L.	Ad	T	Ter	11	22	3, 17	ACE 3668 (8304), O 1692 (4270)
Spergula grandis Pers. (=*Spergularia grandis* (Pers.) Saint Hilaire)	Na, SC	H	Ter	11	26	3, 17	ACE 3647 (8305)
Spergula ramosa (Cambess.) D. Dietr. var. *ramosa* (=*Spergularia ramosa* Cambess.)	Na, AC	H	Ter	11	23	3, 17	ACE 3707 (8306), Nu 5 (683)
Spergula villosa Pers. (=*Spergularia villosa* (Pers.) Cambess.)	Na, AC	H	Ter	13	No	3, 17	ACE 3639 (8307), FCA s/n (7082)
Stellaria media (L.) Cirillo	Ad	T	Ter	7	26	3, 17	ACE 3601b (8308), O 4123 (4260)
Celtidaceae (ROS)							
Celtis australis L.	Ad	P	Ter	3	No	19	ACE 4003 (8309), FCA s/n (5836)
Celtis ehrenbergiana (Klotzsch) Liebm. var. *ehrenbergiana* (=*Celtis spinosa* Spreng; *Celtis tala* Gill.)	Na, AC	P	Ter	3	27	3, 17	ACE 4086 (8842), A 260 (7128)
Chenopodiaceae (CAR)							
Chenopodium album L.	Ad	T	Ter	7	25	3, 17	ACE 3595 (8310), A 581 (338)

Table 1. *Continued.*

Taxon	Status, #	LF	Hab	Loc	Ref P	Ref I	Voucher and BAL
Dysphania ambrosioides (L.) Mosyakin & Clemants (= *Chenopodium ambrosioides* L.)	Na, AC	H	Ter	3	24	3, 17	ACE 3998 (8311), LM 689 (683)
Cistaceae (ROS)							
Crocanthemum brasiliense (Lam.) Spach (= *Helianthemum brasiliense* (Lam.) Persoon)	Na, SC	H	Ter	14	4	4, 17	ACE 3161 (8312), O 4668 (4159)
Convolvulaceae (AST)							
Convolvulus arvensis L.	Ad	C	Ter	7	No	5, 17	E 154 (8313), A 1832 (7100)
Convolvulus hermanniae L´Hér.	Na, AC	H	Ter	13	5	5, 17	E 130 (8314), O 2301 (4472)
Dichondra microcalyx (Hallier f.) Fabris	Na, AC	H	Ter	11	24	5, 17	ACE 4095 (8842); FCA s/n (6530)
Dichondra sericea Sw. var. *sericea*	Na, AC	H	Ter	11	5	5, 17	ACE 3799 (8315), O 2253 (4468)
Evolvulus sericeus Sw. var. *sericeus*	Na, AC	H	Ter	20	5	5, 17	ACE 4028 (8316), F CA s/n (6537)
Crassulaceae (SAX)							
Crassula peduncularis (Sm.) F. Meigen	Na, AC	T	Ter	18	26	3, 17	ACE 3179 (8317)
Cucurbitaceae (ROS)							
Apodanthera sagittifolia (Griseb.) Mart. Crov. var. *villosa* (Cogn.) Mart. Crov.	Na, SC	H	Ter	18	5	5, 17	ACE 4146 (8318), A 740 (410)
Euphorbiaceae (ROS)							
Euphorbia portulacoides L. var. *portulacoides*	Na, AC	C	Ter	13	23	4, 17	ACE 3499 (8319), O 4664 (4178)
Fabaceae (ROS)							
Acacia melanoxylon R. Br.	Ad	P	Ter	17	23	3, 17, 19	ACE 4073 (8843), FCA s/n (4979)
Adesmia bicolor (Poir.) DC.	Na, AC	H	Ter	19	23	3, 15	ACE 3890 (8320), LM 199 (309)
Gleditsia triacanthos L.	Ad	P	Ter	10	26	3, 17, 19	FCA s/n (5012)
Lathyrus hookeri G. Don	Na, AC	C	Ter	14	3	3, 17	ACE 4058b (8321), O 2302 (4210)
Lathyrus nervosus Lam.	Na, SC	C	Ter	14	3	3, 17	ACE 3730 (8322), O 3326 (4221)
Lathyrus pubescens Hook. & Arn. var. *pubescens*	Na, SC	C	Ter	12	3	3, 17	ACE 3775 (8323), O 2320 (4216)
Lathyrus pusillus Elliott (= *L. crassipes* Gillies *ex* Hooker & Arnott)	Na, AC	T	Ter	11	No	3, 17	ACE 3773 (8324), O 4662 (4218)
Lathyrus tomentosus Lam.	Na, SC	C	Ter	12	3	3, 17	ACE 3743 (8325), O 2250 (4212)
Lotus tenuis Waldst. & Kit. *ex* Willd.	Ad	H	Ter	7	28	3, 17	O 3665 (4225), LM 354 (225)
Medicago arabica (L.) Huds.	Ad	T	Ter	8	23	3, 17	FCA s/n (5095), FCA s/n (5088)
Medicago lupulina L.	Ad	T	Ter	7	23	3, 17	O 1522 (4228), NU 707 (2888)
Medicago polymopha L. var. *vulgaris* (Benth.) Shinners	Ad	T	Ter	8	No	3, 17	ACE 3197 (8326), A 1946 (2100)
Melilotus officinalis (L.) Lam.	Ad	H	Ter	18	No	3, 17	ACE 3623 (8327), NU 705 (2886)
Mimosa rocae Lorentz & Niederl.	Na, BA/ #	Ch	Ter	18	3	3, 17	ACE 3796 (8328), V 4048 (2438)
Trifolium polymorphum Poir. var. *polymorphum*	Na, AC	H	Ter	13	26	3, 17	ACE 3823 (8329), A 833 (531)
Trifolium pratense L.	Ad	H	Ter	7	No	3, 17	ACE 4124 (8527), LM 181 (5157)
Trifolium repens L.	Ad	H	Ter	8	24	3, 17	ACE 3678 (8520), O 3279 (4248)
Vicia graminea Sm.	Na, AC	T	Ter	13	No	3, 17	ACE 3741 (8330), NU 830 (6676)
Vicia linearifolia Hook. & Arn.	Na, AC	T	Ter	11	No	3, 17	ACE 3803 (8331), NU 692 (2855)
Vicia nana Vogel	Na, SC	T	Ter	11	3	3, 17	ACE 3766 (8332), O 4661 (4256)
Vicia setifolia Kunth. var. *bonariensis* Burkart	Na, BA/ #	T	Ter	13	3	3, 17	ACE 3806 (8333)
Fumariaceae (RAN)							
Fumaria capreolata L.	Ad	T	Ter	3	No	3, 17	ACE 3696 (8334)
Gentianaceae (AST)							
Centaurium pulchellum (Sw.) Druce	Ad	T	Ter	8	26	5, 17	ACE 3963 (8335), CL 112 (729)
Geraniaceae (RON)							
Geranium molle L.	Ad	T	Ter	20	25	4, 17	ACE 3827 (8336), O 4599 (4197)
Geranium robertianum L.	Ad	T	Ter	21	4	4, 17	ACE 3112 (8337), O 2310 (4157)
Hypericaceae (ROS)							
Hypericum connatum Lam.	Na, AC	Ch	Ter	11	4	4, 17	ACE 3795 (8338), CL 1129 (6680)
Lamiaceae (AST)							
Ballota nigra L.	Ad	Ch	Ter	3	No	5, 17	ACE 4010 (8339)
Lepechinia floribunda (Benth.) Epling	Na, AC	P	Ter	12	5	5, 17	ACE 3660 (8340)
Marrubium vulgare L.	Ad	Ch	Ter	3	26	5, 17	ACE 3984 (8341), FCA s/n (4931)
Mentha pulegium L.	Ad	H	Ma	2	25	5, 17	ACE 4035 (8342), NU 494 (4934)
Prunella vulgaris L.	Ad	H	Ma	3	23	5, 17	ACE 4013 (8343), O 2377 (4450)
Scutellaria racemosa Pers.	Na, AC	H	Ter	13	23	5, 17	ACE 3920 (8344), NU 4 (546)
Lauraceae (MAG)							
Laurus nobilis L.	Ad	P	Ter	3	27	19	ACE 4105 (8846), A 1465 (7117)
Linaceae (ROS)							
Cliococca selaginoides (Lam.) C. M. Rogers & Mildner (=*Linum selaginoides* Lam.)	Na, AC	H	Ter	11	4	4, 17	ACE 3949 (8345), O 4722 (4164)
Loasaceae (AST)							
Blumenbachia insignis Schard.	Na, AC	T	Ter	13	4	4, 17	O 1890 (4124), O 1890 (4124)

Table 1. *Continued.*

Taxon	Status, #	LF	Hab	Loc	Ref P	Ref I	Voucher and BAL
Lythraceae (ROS)							
Cuphea glutinosa Cham. & Schltdl.	Na, AC	C	Ter	13	4	4, 17	E 160 (8346), O 1680 (4123)
Lythrum hyssopifolia L.	Ad	T	Ma	1	25	4, 17	ACE 39 45 (8347), V 4056 (2436)
Malvaceae (ROS)							
Krapovickasia flavescens (Cav.) Fryxell (=*Sida flavescens* Cav.)	Na, AC	H	Ter	13	4	4, 17	ACE 4049 (8348), A 426 (202)
Modiola caroliniana (L.) G. Don	Na, AC	H	Ter	14	26	4, 17	ACE 3198 (8349), A 906 (462)
Pavonia cymbalaria A. St.-Hil. & Naudin	Na, SC	Ch	Ter	18	4	4, 17	ACE 4036 (8350), O 1499 (4170)
Sida rhombifolia L.	Na, AC	Ch	Ter	11	23	4, 17	ACE 3946 (8351), A 1299 (2213)
Montiaceae (CAR)							
Calandrinia ciliata (Ruiz & Pav.) DC.	Na, AC	T	Ter	21	3	3, 17	ACE 3183 (8352), O 4135 (4359)
Myrtaceae (ROS)							
Eucalyptus camaldulensis Dehnh.	Ad	P	Ter	9	25	19	ACE 4099 (8846), FCA s/n (5248)
Psidium salutare (Humb., Bonpl. & Kunth) O. Berg var. *mucronatum* (Cambess.) Landrum (=*P. luridum* (Spreng.) Burret)	Na, SC	C	Ter	13	23	4, 17	ACE 4111 (8847), CL 924 (2107)
Oleaceae (AST)							
Ligustrum lucidum W. T. Aiton	Ad	P	Ter	3	26	5, 17, 19	ACE 4141 (8519)
Onagraceae (ROS)							
Ludwigia peploides (Kunth) P. H. Raven	Na, AC	H	Fl	1	22	4, 17	ACE 3996 (8353), CL 284 (5225)
Oenothera parodiana Munz	Na, AC	T	Ter	19	4	4, 17	ACE 4063 (8354)
Orobanchaceae (AST)							
Agalinis communis (Cham. & Schltdl.) D´Arcy (=*Gerardia communis* Cham. & Schltdl.)	Na, AC	Ch	Ter	13	23	5, 17	ACE 3940 (8355), A 566 (7155)
Agalinis genistifolia (Cham. & Schltdl.) D´Arcy (=*Gerardia genistifolia* Chas. & Schltdl.)	Na, SC	Ch	Ter	13	5	5, 17	E 144 (8356), O 2314 (4418)
Bartsia trixago L. (=*Bellardia trixago* (L.) Allioni)	Ad	T	Ter	10	23	5, 17	ACE 3169 (8357), O 3206 (4411)
Oxalidaceae (ROS)							
Oxalis articulata Savigny ssp. *articulata*	Na, AC	C	Ter	18	4	4, 17	ACE 3804 (8358), LM 698 (690)
Oxalis brasiliensis Lodd. (=*O. macachin* Arechav.)	Na, SC	C	Ter	18	22	4, 17	E 135 (8359), O 4637 (4145)
Oxalis conorrhiza Jacq. (=*O. cordobensis* Knuth)	Na, AC	C	Ter	13	24	4, 17	ACE 3747 (8360), FCA s/n (6033)
Oxalis floribunda Lehm. (=*O. articulata* Savigny var. *hirsuta* Progel)	Na, SC	C	Ter	13	4	4, 17	ACE 3801 (8361)
Oxalis lasiopetala Zucc. (=*O. gracillima* Arechav.)	Na, SC	C	Ter	20	4	4, 17	ACE 4151 (8848), V 616 (2556)
Oxalis perdicaria (Molina) Bertero (=*O. mallobolba* Cav.)	Na, SC	C	Ter	20	26	4, 17	ACE 4032 (8362), CL 1107 (6652)
Passifloraceae (ROS)							
Passiflora caerulea L.	Na, AC	L	Ter	3	4	4, 17	ACE 4108 (8849), A 832 (111)
Phytolaccaceae (CAR)							
Phytolacca dioica L.	Na, AC	P	Ter	3	No	3, 17	ACE 4007 (8363)
Plantaginaceae (AST)							
Linaria canadensis (L.) Dum. Cours. (=*L. texana* Scheele)	Ad	H	Ter	15	24	5, 17	ACE 3199 (8364), O 4667 (4426)
Plantago myosuros Lam.	Na, AC	T	Ter	11	22	5, 17	ACE 3819 (8366), O 1530 (4385)
Plantago tandilensis (Pil.) Rahn =(*P. brasiliense* Sims var. *tandilensis* Pilger)	Na, BA/ #	Ch	Ter	15	5	5, 17	ACE 3717 (8367), O 2288 (4382)
Plantago tomentosa Lam. ssp. *tomentosa* (=*P. paralias* Decne)	Na, AC	H	Ter	11	26	5, 17	ACE 3909 (8368), FCA s/n (4403)
Veronica arvensis L.	Ad	T	Ter	7	26	5, 17	ACE 3740 (8569), O 4130 (4414)
Polygalaceae (ROS)							
Polygala australis A. W. Benn.	Na, SC	T	Ter	13	27	4, 17	ACE 3705 (8370), A 1487 (2377)
Polygala linoides Poir. var. *linoides* Phil.	Na, AC	T	Ter	13	22	4, 17, 29	ACE 3168 (8371), NU 462 (6048)
Polygonaceae (CAR)							
Polygonum acuminatum Kunth var. *acuminatum*	Na, AC	H	Ma	2	24	3, 17	ACE 3994 (8372), CL 1557 (7131)
Rumex crispus L.	Ad	H	Ma	3	26	3, 17	ACE 3661 (8373), O 6161 (4314)
Rumex obtusifolius L.	Ad	H	Ter	19	23	3, 17	ACE 4050 (8374), O 4102 (4293)
Portulacaceae (CAR)							
Portulaca oleracea L.	Ad	T	Ter	3	No	3, 17	O 2423 (4358)
Portulaca papulosa Schltdl.	Na, SC	T	Ter	18	3	3, 17	ACE 4110 (8375), A 577 (89)
Primulaceae (AST)							
Anagallis arvensis L.	Ad	T	Ter	13	22	5, 17	ACE 3521 (8376), O 4110 (4456)
Centunculus minimus L.	Ad	T	Ter	13	No	5, 17	ACE 3910 (8377)
Pelletiera verna A. St.-Hil. (=*Pelletiera serpyllifolia* (Poir.) Kuntze)	Na, AC	T	Ter	13	No	5, 17	ACE 3902 (8378)
Ranunculaceae (RAN)							
Anemone decapetala Ard. var. *foliolosa* Eichler	Na, AC	C	Ter	13	22	3, 17	E 198 (8379), CL 997 (2868)
Rhamnaceae (ROS)							
Colletia paradoxa (Spreng.) Escal.	Na, SC / #	P	Ter	18	23	4, 17	ACE 3694a (8380), O 1657 (4148)
Colletia spinosissima F.J. Gmel.	Na, AC	P	Ter	3	24	4, 17	ACE 3694b (8865), A 1357 (2295)
Rosaceae (ROS)							
Margyricarpus pinnatus (Lam.) Kuntze	Na, AC	Ch	Ter	18	22	3, 17	ACE 3522 (8381), NU 454 (5985)
Prunus mahaleb L.	Ad	P	Ter	3	26	17, 19	ACE 3174 (8382)

Table 1. *Continued.*

Taxon	Status, #	LF	Hab	Loc	Ref P	Ref I	Voucher and BAL
Rubus ulmifolius Schott	Ad	P	Ter	18	No	3, 17	ACE 4113 (8851), A 221 (5800)
Rubiaceae (AST)							
Borreria dasycephala (Cham. & Schltdl.) Bacigalupo & E. L. Cabral (=*Diodia dasycephala* Cham. & Schltdl.)	Na, AC	T	Ter	13	No	5, 17	ACE 3936b (8383), A 769 (2386)
Galianthe laxa (Cham. & Schltdl.) E. L. Cabral ssp. *laxa* (=*Borreria laxa* Cham. & Schltdl.)	Na, AC	H	Ter	2	No	5, 17	ACE 4252 (8384)
Galium aparine L.	Ad	T	Ter	3	23	5, 17	ACE 3597 (8385), O 5093 (4521)
Galium hirtum Lam. (=*Relbunium hirtum* (Lam.) Schumann)	Na, SC	T	Ter	17	5	5, 17	ACE 3180 (8386), O 4665 (4518)
Galium hypocarpium (L.) Endl. *ex* Griseb. (=*Relbunium hypocarpium* (L.) Hemsley)	Na, AC / #	H	Ter	17	No	5, 17	ACE 3712 (8387)
Sherardia arvensis L.	Ad	T	Ter	19	26	5, 17	ACE 4061 (8388), CL 211 (691)
Sapindaceae (ROS)							
Dodonaea viscosa Jacq.	Co	P	Ter	18	24	4, 17	ACE 4096 (8864), O 1704 (4113)
Scrophulariaceae (AST)							
Buddleja thyrsoides Lam.	Na, SC	P	Ter	11	5	5, 17	ACE 3808 (8389), NU 460 (4312)
Solanaceae (AST)							
Cestrum parqui L´Hér.	Na, AC	P	Ter	3	27	5, 12, 17	E 132 (8390), O 1511 (4548)
Datura ferox L.	Na, AC	T	Ter	13	No	5, 12, 17	ACE 4094 (8809)
Jaborosa runcinata Lam.	Na, SC	C	Ter	7	No	5, 12, 17	ACE 4104 (8852), CL 1099 (6640)
Petunia axilaris (Lam.) Britton, Stern & Poggenb.	Na, AC	T	Ter	18	5	5, 12, 17	E 157 (8391), LM 693 (696)
Physalis viscosa L.	Na, AC	C	Ter	6	26	5, 12, 17	ACE 4018 (8392), LM 699 (692)
Salpichroa origanifolia (Lam.) Baill.	Na, AC	C	Ter	4	5	5, 12, 17	E 134 (8393), A 1000 (2314)
Solanum chenopodioides Lam. (=*S. gracilius* Herter; *S. sublobatum* Willd. *ex* Schult.)	Na, SC	T	Ter	11	5	5, 12, 17	ACE 3632 (8394), CL 479 (6242)
Solanum commersonii Dunal *ex* Poir.	Na, SC	C	Ter	14	5	5, 12, 17	ACE 4119 (8853), NU 781 (2979)
Solanum granulosum-leprosum Dunal (=*S. verbascifolium* L. var. *auriculatum* (Ait.) Kuntze)	Na, AC	P	Ter	3	No	5, 12, 17	ACE 3699 (8395), FCA s/n (6338)
Solanum pseudocapsicum L.	Na, AC	Ch	Ter	7	23	5, 12, 17	ACE 3679 (8396), A 1859a (7108)
Solanum sisymbriifolium Lam.	Na, AC	Ch	Ter	3	25	5, 12, 17	ACE 3697 (8397), LM 706 (723)
Urticaceae (ROS)							
Parietaria debilis G. Forst.	Co	T	Ter	21	24	3, 17	ACE 3185 (8398), A 765 (259)
Verbenaceae (AST)							
Glandularia tenera (Spreng.) Cabrera (=*G. pulchella* (Sweet) Tronc. var. *pulchella*)	Na, AC/ #	H	Ter	18	5	5, 11	ACE 3899 (8399), V 3810 (2435)
Phyla nodiflora (L.) Greene var. *minor* (=Gillies & Hook.) N. O'Leary & Múlgura (=*P. canescens* (Kunth) Greene)	Na, AC	H	Ter	7	No	5, 11	O 1579 (4498), FCA s/n (6378)
Verbena bonariensis L. var. *bonariensis*	Na, AC	T	Ter	14	23	5, 11	ACE 3967b (8400), O 16 (4489)
Verbena intermedia Gillies & Hook. *ex* Hook.	Na, SC	H	Ter	14	5	5, 11	ACE 3627 (8401), CL 238 (826)
Verbena montevidensis Spreng.	Na, AC	T	Ter	3	23	5, 11	ACE 3641b (8402), NU 115 (757)
Violaceae (ROS)							
Pombalia parviflora (Mutis *ex* L. f.) Paula-Souza	Na, AC	H	Ter	13	4	4, 17	ACE 3193 (8403), NU 215 (6112)
Subclass Magnoliidae (Monocotyledon species)							
Amaryllidaceae (LIL)							
Habranthus gracilifolius Herb.	Na, SC / #	C	Ter	11	1	1, 17	O 4759 (4568), ACE 4102 (8854)
Habranthus tubispathus (L'Her.) Traub (=*H. andersonii* Herb.ex Lindl.)	Na, AC	C	Ter	18	1	1, 17	O 3320 (4570), LM 682 (673)
Ipheion uniflorum (Lindl.) Raf. (=*Tristagma uniflorum* (Lindl.) Traub)	Na, AC	C	Ter	20	1	1, 17	FCA s/n (5281), FCA s/n (5276)
Nothoscordum gaudichaudianum Kunth	Na, SC	C	Ter	13	No	12, 17	ACE 3811 (8404)
Nothoscordum gracile (Dryand. *ex* Aiton) Stearn var. *gracile* (=*N. inodorum* (Ait) Nicholson)	Na, AC	C	Ter	12	1	1, 17	ACE 3167 (8405), LM 658 (2406)
Nothoscordum montevidense Beauverd var. *latitepalum* (Guagl.) Ravenna	Na, SC	C	Ter	13	24	1, 17	ACE 3734 (8406), LM 634 (542)
Nothoscordum nudicaule (Lehm.) Guagl. (=*N. euosmum* (Link & Otto) Kunth)	Na, AC	C	Ter	13	1	1, 17	ACE 3787 (8407), FCA s/n (5293)
Rodophiala bifida (Herb.) Traub (=*Hippeastrum bifidum* (Herb.) Baker)	Na, AC / #	C	Ter	11	1	1, 17	ACE 4112 (8408), O 4767 (4567)
Asparagaceae (LIL)							
Asparagus officinalis L.	Ad	C	Ter	8	No	1, 17	ACE 3924 (8409), CL 44 (5297)
Bromeliaceae (LIL)							
Tillandsia bergeri Mez	Na, SC/ #	E	Ter	18	1	1, 17	ACE3966 (8410), Cl 926 (2104)
Commelinaceae (LIL)							
Commelina erecta L. var. *angustifolia* (Michx.) Fernald	Na, AC	C	Ter	11	1	1, 17	ACE 4047 (8411), Nu 108 (458)
Cyperaceae (LIL)							
Bulbostylis capillaris (L.) C. B. Clarke var. *capillaris*	Na, AC	T	Ter	18	1	1, 17	ACE 3514 (8412), A 735 (384)
Carex bonariensis Desf. *ex* Poir. var. *bonariensis*	Na, AC	C	Ter	13	No	1, 17	ACE 3991 (8413), NU 26 (791)
Carex chilensis Brongn. *ex* Duperrey (=*C. riparia* var. *chilensis* (Brong.) Kukenthal)	Na, SC	C	Ma	2	26	1, 17	ACE 3993 (8414), O 5102 (3455)

Table 1. *Continued.*

Taxon	Status, #	LF	Hab	Loc	Ref P	Ref I	Voucher and BAL
Carex divulsa Stokes	Ad	H	Ter	17	No	1, 17	ACE 4146 (8415), LM 833 (758)
Carex phalaroides Kunth	Na, AC	C	Ter	8	1	1, 17	ACE 3706 (8416)
Carex sororia Kunth ssp. *sororia*	Na, SC	C	Ma	2	26	1, 17	ACE 3683 (8417)
Cyperus entrerianus Boeck.	Na, AC	C	Ma	2	28	1, 17	E 179 (8418), A 603 (162)
Cyperus haspan L. var. *haspan* (=*C. cayennensis* (Lam.) Britton)	Na, AC	C	Ma	2	1	1, 17	ACE 4147 (8419)
Cyperus reflexus Vahl.	Na, AC	C	Ter	18	22	1, 17	ACE 3645 (8420), O 2117 (3450)
Cyperus rigens J. Presl & C. Presl var. *serrae* (Boeck) Pedersen (=*C. laetus* ssp. *laetus* Presl)	Na, AC	C	Ma	13	1	1, 17	ACE 3675a (8421), A 604 (277)
Eleocharis bonariensis Nees	Na, AC	H	Ma	1	27	1, 17	ACE 3989 (8422), O 3662 (3508)
Eleocharis macrostachya Britton	Na, AC	H	Ma	3	26	1, 17	ACE 3839 (8423), O 1805 (3494)
Eleocharis montevidensis Kunth	Na, AC	H	Ma	14	1	1, 17	ACE 3941 (8424), FCA s/n (6639)
Iridaceae (LIL)							
Cypella herbertii (Lindl.) Herb. ssp. *wolffhuegelii* (Hauman) Ravenna	Na, BA/ #	C	Ter	11	1	1, 17	O 3323 (4587), O 3323 (4587)
Gelasine elongata (Graham) Ravenna (=*G. azurea* Herb.)	Na, SC	C	Ter	10	1	1, 17	ACE 3923 (8426), LM 660 (4780)
Herbertia lahue (Molina) Goldblatt ssp. *amoena* (Gris.) Goldblatt (=*Alophia lahue* (Mol.) Espin. ssp *amoena* (Gris.) Ravenna)	Na, SC	C	Ter	13	1	1, 17	ACE 3825 (8427), O 2573 (4584)
Sisyrinchium chilense Hook (=*S. iridifolium* H.B.K. ssp *valdivianum* (Phil.) Ravenna)	Na, AC	H	Ter	14	24	1, 17	ACE 3917a (8429), A 542 (69)
Sisyrinchium minutiflorum Klatt.	Na, SC	T	Ter	18	12	1, 12, 17	ACE 3817 (8430)
Sisyrinchium platense I. M. Johnst.	Na, SC	H	Ter	14	26	1, 12,17	ACE 3917b (8431), CL 202 (688)
Sisyrinchium sp. *	Na, SC	H	Ter	14	-	1, 12, 17	ACE 3550 (8428)
Juncaceae (LIL)							
Juncus balticus Willd.	Na, AC	C	Ter	14	23	1, 17	ACE 3735 (8432), NU 182 (4790)
Juncus bufonius L. var. *buffonius*	Na, AC	T	Ma	2	24	1, 17	ACE 3912 (8433), O 1817 (4612)
Juncus capillaceus Lam.	Na, AC	H	Ma	11	25	1, 17	ACE 3688 (8434), O 1463 (4603)
Juncus imbricatus Laharpe.	Na, AC	C	Ter	13	26	1, 17	ACE 3610b (8435), O 1997 (4611)
Juncus microcephalus Kunth	Na, AC	C	Ter	3	1	1, 17	E 181 (8436), O 1959 (4599)
Juncus pallescens Lam. (=*J. dombeyanus* Gay)	Na, AC	C	Ma	13	23	1, 17	ACE 3943 (8437), A 1193 (2192)
Juncus uruguensis Griseb.	Na, AC/ #	H	Ter	18	23	1, 17	ACE 3754 (8438), A 1975 (6913)
Lemnaceae (LIL)							
Lemna gibba L.	Co	T	Fl	1	No	1, 17	ACE 4143 (8439)
Orchidaceae (LIL)							
Bipinnula pennicillata (Reichb. f.) Cisternas & Salazar (=*Geoblasta pennicillata* (Reichb) Hoehne *ex* Correa)	Na, SC/ #	C	Ter	14	1	1, 17	ACE 3997 (8440), A 28 (7119)
Brachystele dilatata (Lindl.) Schltr.	Na, AC	C	Ter	17	1	1, 17	ACE 3933c (8441), NU 224 (5353)
Chloraea membranacea Lindl.	Na, SC	C	Ter	3	1	1, 17	FCA s/n (5356), NU 34 (150)
Poaceae (LIL)							
Amelichloa brachychaeta (Godr.) Arriaga & Barkworth (=*Stipa brachychaeta* Godron)	Na, AC	H	Ter	10	28	2, 8, 17	ACE 3836 (8442), O 2170 (3924)
Aristida spegazzinii Arechav. (=*A. spegazzini* Arechav. var. *pallescens* Hackel)	Na, AC	H	Ter	18	2	2, 7, 17	ACE 3501 (8443), A 1202 (1862)
Bothriochloa laguroides (DC.) Herter var. *laguroides*	Na, AC	C	Ter	8	22	2, 7, 17	E 178 (8444), LM 376 (12)
Briza maxima L.	Ad	T	Ter	11	23	2, 8, 17	O 2149 (4027), NU 458 (1089)
Briza minor L.	Ad	T	Ter	21	22	2, 8, 17	ACE 3791 (8445), O 1690 (4030)
Bromidium tandilense (Kuntze) Rúgolo (=*Agrostis tandilensis* (Kuntze) Parodi)	Na, AC	T	Ter	18	No	2, 8, 17	ACE 3716 (8446), A 1442 (1576)
Bromus auleticus Trin. *ex* Nees	Na, AC	H	Ter	11	23	2, 8, 17	ACE 3863 (8447), CL 307 (1056)
Bromus catharticus Vahl var. *catharticus* (=*B. unioloides* Humboldt)	Na, AC	H	Ter	17	23	2, 8, 17	ACE 3784 (8448), CL 995 (6954)
Bromus hordaceus L. (=*B. mollis* L.)	Ad	T	Ter	13	26	2, 8, 17	ACE 3886 (8449), CL 1037 (2816)
Chascolytrum brizoides (Lam.) Essi, Longhi-Wagner & Souza-Chies (=*Briza brizoides* (Lam.) Kuntze)	Na, AC	H	Ter	20	2	2, 8, 17	ACE 3897 (8450), NU 459 (577)
Chascolytrum rufum J. Presl (=*Briza rufa* (Presl) Steudel)	Na, AC	H	Ter	4	22	2, 8, 17	ACE 3919 (8451), O 4677 (4013)
Chascolytrum subaristatum (Lam.) Desv. (=*Briza subaristata* Lam.)	Na, AC	H	Ter	18	2	2, 8, 17	ACE 3715 (8452), LM 540 (190)
Chascolytrum uniolae (Ness) Essi, Longhi-Wagner & Souza-Chies (=*Briza uniolae* (Nees) Ness *ex* Steudel)	Na, AC	H	Ter	19	2	2, 8, 17	ACE 3539 (8453), LM 558 (147)
Cortaderia selloana (Schult. & Schult. f.) Asch. & Graebn.	Na, AC	H	Ter	11	22	2, 7, 17	ACE 4089 (8505), A 450 (224)
Cynodon dactylon (L.) Pers.	Ad	C	Ter	7	26	2, 7, 17	ACE 4092 (8506), O 2195 (4005)
Cynosurus echinatus L.	Ad	T	Ter	4	23	2, 8, 17	ACE 4054 (8454), NU 222 (1252)
Dactylis glomerata L.	Ad	T	Ter	17	26	2, 8, 17	ACE 4093 (8511), CL 310 (1576)
Danthonia cirrata Hack. & Arechav.	Na, AC	C	Ter	10	2	2, 7, 17	ACE 3535 (8455), NU 327 (1287)
Danthonia montevidensis Hack. & Arechav.	Na, SC/ #	H	Ter	18	No	2, 7, 17	ACE 4029 (8456), O 2143 (3801)
Deyeuxia alba J. Presl ssp. *alba* (=*D. armata* (Doell) Parodi)	Na, AC	C	Ter	13	2	2, 8, 17	ACE 3845 (8457), LM 651 (269)
Deyeuxia viridiflavescens (Poir.) Kunh	Na, AC	C	Ter	18	2	2, 8, 17	ACE 3483 (8458), O 5233 (3790)
Dichanthelium sabulorum (Lam.) Gould & C.A. Clark. (=*Panicum sabulorum* Lam.)	Na, AC	H	Ter	11	2	2, 7, 17	ACE 3638 (8459), O 5197 (3564)

Table 1. *Continued.*

Taxon	Status, #	LF	Hab	Loc	Ref P	Ref I	Voucher and BAL
Echinochloa crus-galli (L.) P. Beauv. var. *crus-galli*	Ad	T	Ma	2	26	2, 7, 17	A 1766 (1927), NU 404 (1309)
Echinochloa crus-galli (L.) P. Beauv. var. *mitis* (Pursh.) Peterm.	Ad	T	Ma	2	No	2, 7, 17	ACE 4097 (8460)
Echinochloa crus-pavonis (Kunth) Schultz.	Ad	T	Ma	2	No	2, 7, 17	ACE 3682 (8507)
Eleusine indica (L.) Gaertn	Ad	T	Ter	11	No	2, 7, 17	ACE 4098 (8508), V 4066 (1804)
Elionurus muticus (Spreng.) Kuntze	Na, AC	H	Ter	18	2	2, 7, 17	ACE 3891 (8461), V 3627 (2539)
Eragrostis airoides Nees	Na, AC	H	Ter	13	2	2, 7, 17	E 156 (8462), V 3928 (1812)
Eragrostis lugens Nees	Na, AC	H	Ter	20	22	2, 7, 17	ACE 3649 (8463), A 733 (397)
Festuca arundinacea Schreb.	Ad	C	Ter	17	2	2, 8, 17	ACE 3985 (8464), CL 314 (1636)
Glyceria multiflora Steud.	Na, AC	H	Ma	1	22	2, 8, 17	ACE 3999 (8465), NU 7 (397)
Holcus lanatus L.	Ad	T	Ter	6	24	2, 8, 17	E 176 (8466), O 2150 (3602)
Hordeum murinum L. ssp. *leporinum* (Link) Arcang. (=*H. leporinum* Link.)	Ad	T	Ter	13	23	2, 8, 17	O 5136 (3607), LM 536 (1371)
Hordeum stenostachys Godr.	Na, AC	H	Ter	18	26	2, 8, 17	ACE 3484 (8467), CL 205 (845)
Jarava filifolia (Nees.) Ciald. (=*Stipa filifolia* Nees)	Na, SC	H	Ter	13	2	2, 8, 17	ACE 4145 (8468), CL 189 (1867)
Jarava juncoides (Speg.) Peñailillo (=*Stipa juncoides* Speg.)	Na, SC	H	Ter	13	2	2, 8, 17	ACE 3556 (8469), CL 177 (737)
Leersia hexandra Sw.	Na, AC	C	Ma	1	22	2, 7, 17	ACE 3992 (8470), A 1258 (1379)
Lolium multiflorum Lam.	Ad	T	Ter	8	24	2, 8, 17	ACE 3976 (8471), CL 263 (1385)
Lolium perenne L.	Ad	H	Ter	8	No	2, 8, 17	ACE 3829 (8472), CL 201 (1381)
Melica brasiliana Ard.	Na, SC	C	Ter	20	2	2, 8, 17	ACE 3534 (8473), LM 543 (38)
Melica macra Nees	Na, SC	C	Ter	13	26	2, 8, 17	ACE 4065 (8475), O 5217 (3647)
Melica parodiana Torres	Na, SC/ #	C	Ter	18	2	2, 8, 17	ACE 3930 (8476)
Melica rigida Cav. (*M. aurantiaca* Desr. *ex* Lam. var. *rigida* (Cav.) Papp)	Na, SC	C	Ter	10	No	8, 17	ACE 3761 (8474)
Nassella filiculmis Barkworth (=*Stipa filiculmis* Delile)	Na, SC	H	Ter	13	2	2, 8, 17	ACE 3889 (8477), O 7159 (4683)
Nassella megapotamia Barkworth (=*Stipa megapotamia* Spreng. *ex* Trin.)	Na, SC	H	Ter	11	2	2, 8, 17	ACE 3831 (8478), A 1225 (1520)
Nassella melanosperma Barkworth (=*Stipa melanosperma* J. Presl)	Na, AC	H	Ter	11	24	2, 8, 17	ACE 3881 (8479), O 5283 (4669)
Nassella neesiana Barkworth (=*Stipa neesiana* Trin. & Rupr.)	Na, AC	H	Ter	11	22	2, 8, 17	E 98 (8480), O 5106 (3900)
Panicum bergii Arechav.	Na, AC	H	Ter	18	26	2, 7, 17	E 93 (8481), CL 232 (687)
Paspalum dilatatum Poir. ssp. *dilatatum*	Na, AC	C	Ter	8	26	2, 7, 17	ACE 4106 (8509), NU 398 (1165)
Paspalum distichum L.	Na, AC	C	Ma	2	26	2, 7, 17	ACE 4004 (8482), A 744 (314)
Paspalum exaltatum J. Presl	Na, SC	C	Ter	5	22	2, 7, 17	ACE 3951 (8483), A 1589 (6752)
Paspalum plicatulum Michx.	Na, AC	C	Ter	14	26	2, 7, 17	ACE 3625 (8484), V 3945 (1816)
Paspalum quadrifarium Lam.	Na, SC	C	Ter	14	2	2, 7, 17	ACE 3693 (8485), LM 687 (1133)
Phalaris angusta Nees *ex* Trin.	Na, AC	T	Ter	12	22	2, 8, 17	ACE 3758 (8486), O 5294 (4654)
Phalaris aquatica L.	Ad	C	Ter	4	No	2, 8, 17	ACE 3832 (8487), NU 356 (1410)
Piptochaetium bicolor (Vahl) E. Desv.	Na, SC	H	Ter	18	22	2, 8, 17	E 96 (8488), LM 542 (135)
Piptochaetium lasianthum Griseb.	Na, SC	H	Ter	18	2	2, 8, 17	ACE 3860 (8489), O 3224 (3732)
Piptochaetium montevidense (Spreng.) Parodi	Na, AC	H	Ter	18	2	2, 8, 17	ACE 3847 (8490), LM 745 (198)
Piptochaetium ruprechtianum E. Desv.	Na, SC	H	Ter	18	2	2, 8, 17	ACE 3862 (8491), LM 541 (58)
Piptochaetium stipoides (Trin. & Rupr.) Hack. *ex* Arechav. var. *stipoides*	Na, AC	H	Ter	18	22	2, 8, 17	ACE 3882 (8492), O 5266 (4680)
Poa bonariensis (Lam.) Kunth (=*P. montevidensis* Arechav.)	Na, AC	C	Ter	8	23	2, 8, 17	ACE 3839 (8493), O 5198 (3816)
Poa compressa L.	Ad	C	Ter	3	No	2, 8, 17	ACE 3536 (8494)
Poa iridifolia Hauman	Na, BA/ #	H	Ter	15	2	2, 8, 17	ACE 3965 (8495), V 3756 (1811)
Poa lanigera Nees	Na, AC	H	Ter	13	No	2, 8, 17	ACE 3738 (8496), NU 20 (1011)
Poa lanuginosa Poir.	Na, AC	C	Ter	13	2	2, 8, 17	ACE 3749 (8497), O 2350 (3820)
Poa ligularis Nees *ex* Steud var. *ligularis*	Na, SC	H	Ter	13	2	2, 8, 17	ACE 3802 (8598), CL 1000 (2874)
Poa ligularis Nees *ex* Steud var. *resinulosa* (Ness *ex* Steud.) Fernández Pepi & Giussani (=*P. resinulosa* Nees *ex* Steud.)	Na, SC	H	Ter	11	2	2, 8, 17	ACE 3163 (8599), LM 957 (1427)
Schizachyrium spicatum (Spreng.) Herter	Na, AC	H	Ter	18	22	2, 7, 17	ACE 3895 (8500), V 4028 (1810)
Setaria parviflora (Poir.) Kerguélen var. *parviflora* (=*S. geniculata* (Lam.) Beauvois)	Na, AC	C	Ter	18	23	2, 7, 17	E 152 (8501), CL 364 (1479)
Setaria vaginata Spreng. var. *bonariensis* Nicora	Na, SC	H	Ter	11	2	2, 7, 17	ACE 4009 (8502)
Sorghastrum pellitum (Hack.) Parodi	Na, AC	H	Ter	14	23	2, 7, 17	E 101 (8503), O 3253 (3880)
Sporobolus indicus (L.) R. Br.	Na, AC	H	Ter	18	23	2, 7, 17	ACE 3636 (8504), LM 338 (21)
Vulpia australis (Ness *ex* Steud.) C.H. Blom	Na, SC	T	Ter	18	26	2, 8, 17	ACE 4059 (8510), O 5181 (3871)
Vulpia bromoides (L.) Gray (=*V. dertonensis* (All.) Gola)	Ad	T	Ter	18	2	2, 8, 17	ACE 3755 (8512), NU 23 (669)
Vulpia muralis (Kunth) Nees	Ad	T	Ter	18	No	8, 17	ACE 3957 (8515)
Vulpia myuros (L.) C. C. Gmel. f. *megalura* (Nutt.) Auquier (=*V. megalura* (Nutt.) Rydberg)	Ad	T	Ter	13	26	2, 8, 17	ACE 3986 (8513), O 5213 (3876)
Typhaceae (LIL)							
Typha latifolia L.	Co	H	Ma	4	No	1, 17	ACE 3966 (8514), O 2483 (4597)

Table 2. Site identifiers correspond to labels in Figure 3. The spatial references are geographic coordinates relative to the WGS84 datum.

Site	Habitat remarks	Latitude (S)	Longitude (W)
1	Pond and stream	37°55′26.12″	057°49′19.60″
2	Pond and stream	37°55′25.97″	057°49′18.95″
3	Shaded banks of the stream	37°55′27.47″	057°49′19.76″
4	Arboreal stratum	37°55′30.93″	057°49′20.36″
5	Intermediate slope	37°55′25.62″	057°49′22.67″
6	Grassland	37°55′24.63″	057°49′20.63″
7	Grassland	37°55′26.89″	057°49′17.00″
8	Grassland	37°55′28.79″	057°49′18.56″
9	Grassland	37°55′39.34″	057°49′04.42″
10	Valley of the E summit	37°55′33.55″	057°49′15.00″
11	Lower slope	37°55′38.76″	057°49′16.52″
12	Upper slope	37°55′36.04″	057°49′19.09″
13	Upper slope	37°55′39.71″	057°49′12.61″
14	Rocky, grassland slope	37°55′39.43″	057°49′10.68″
15	Humid, grassland slope	37°55′33.23″	057°49′12.38″
16	NE summit	37°55′36.64″	057°49′10.25″
17	Valley in the N summit	37°55′39.89″	057°49′07.93″
18	"Acacias" area	37°55′40.26″	057°49′05.53″
19	Central summit	37°55′40.47″	057°49′03.84″
20	Valley in the SE summit	37°55′43.37″	057°49′00.87″
21	SE summit	37°55′31.87″	057°49′11.92″

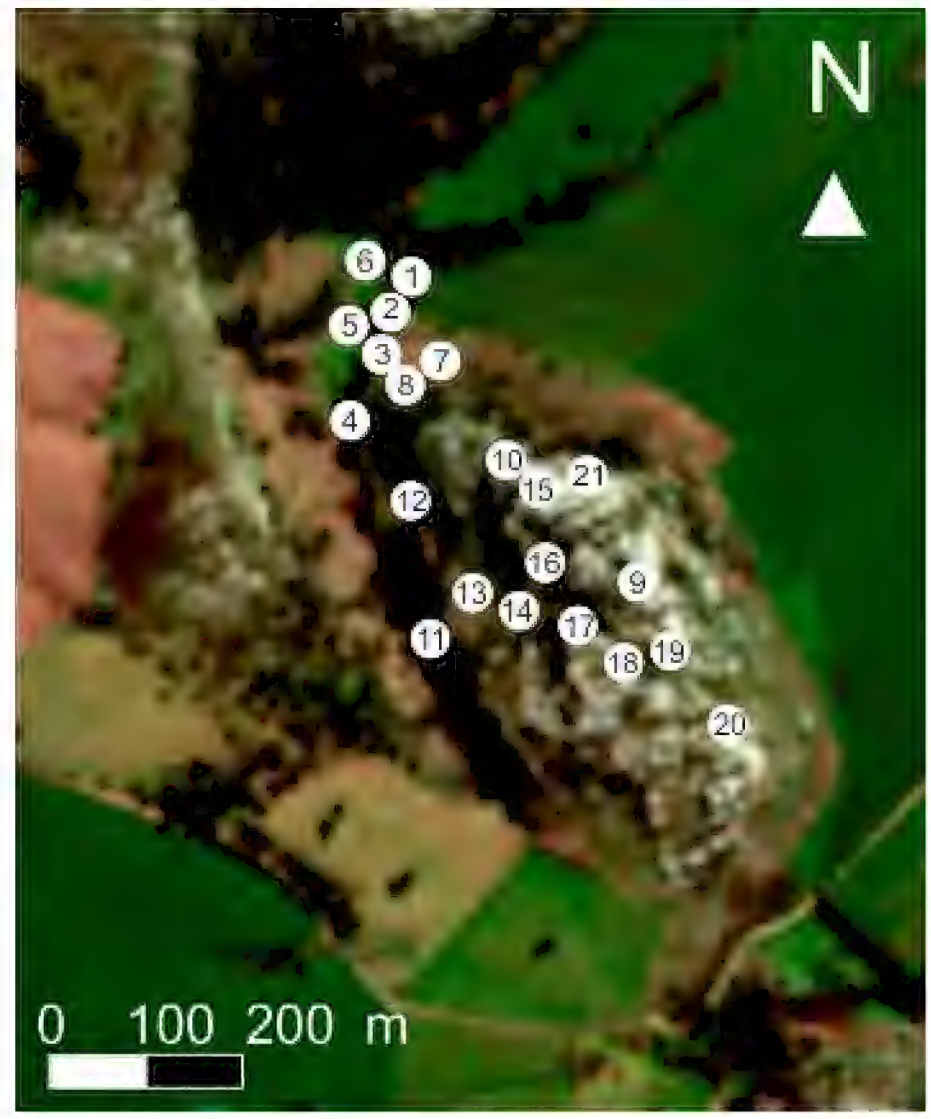

Figure 3. Location. Each number corresponds to a location where certain species were more frequently found. This figure complements tables 1 and 2. Satellite image obtained from Sentinel Playground (Sentinel Playground, 2017).

Results

Identified taxa in the inventoried area of Paititi Natural Reserve are presented in Table 1. Some species were only found in specific sites of the reserve, while others were found in many different sites. The location where each species was more frequently found is described in Fig. 3 and detailed in Tables 1 and 2. In the untouched area the richness of vascular plants reached 364 species and infraspecific taxa. In the untouched area the richness of vascular plants reached 360 species and 4 species were represented by 2 varieties each (*Conyza bonariensis*, *C. sumatrensis*, *Echinochloa crus-galli*, and *Poa ligularis*). One *Sisyrinchium* sp. could not be identified to species.

Of all recorded species, 97.5% belong to the Spermatophytes (subclasses Pinidae and Magnoliidae), and 2.5% to the Polypodiidae (Pteridaceae, with 3 species, the best represented family). Among the Spermatophytes, only 2 species of Subclass Pinidae were found, while among Magnoliidae (angiosperms), 234 species and infraspecific taxa belong to basal dicot and eudicot superorders (64.3%) and 119 to the monocot superorder (32.7%). The recorded vascular plants belong to 72 families, with 34 families represented with only 1 specific taxon and 11 with 2 taxa (Table 1). Six families had more than 10 taxa each, Poaceae with 76 taxa (20.9%), Asteraceae with 73 (20.1%), Fabaceae with 21 (5.8%), Cyperaceae with 13 (3.6%), and Apiaceae and Solanaceae with 11 taxa each (3.0%). The genera of subclass Magnoliidae that contributed with most species were: *Gamochaeta* (8), *Juncus* (7), *Baccharis*, *Oxalis* and *Poa* (6), *Carex*, *Eryngium*, *Lathyrus*, *Paspalum*, *Piptochaetium* and *Solanum* (5), and *Chascolytrum*, *Cyperus*, *Hypochaeris*, *Melica*, *Nassella*, *Sisyrinchium, Senecio, Vicia* and *Vulpia* (4).

Regarding the geographic origin of the species and the infraspecific taxa, 1.1% were cosmopolitan, 26.1% were adventive, and 72.8% were native (Fig. 4). Within this last group, 187 species grow in several places of the American continent, 78 species occur exclusively in the Southern Cone Region of South America (Flora Argentina 2017), and only 7 species are endemic to mountain ranges of Buenos Aires province (Table 1). From the total number of taxa, 30.6% were annual or biennial plants (therophytes), while 69.4% were perennial species. Among the perennial species, the most abundant life forms were hemicryptophytes (33.1%) and cryptophytes (22.6%). Lianas and epiphytes phanerophytes, chamaephytes, and phanerophytes were scarce (1.1%, 6.1%, 6.6%, respectively). Each life form was mainly represented by species of native status, except for therophytes, most of which were adventive (Fig. 4).

Diagnoses, descriptions, and images are presented for 1 species that was not fully identified, 10 species that

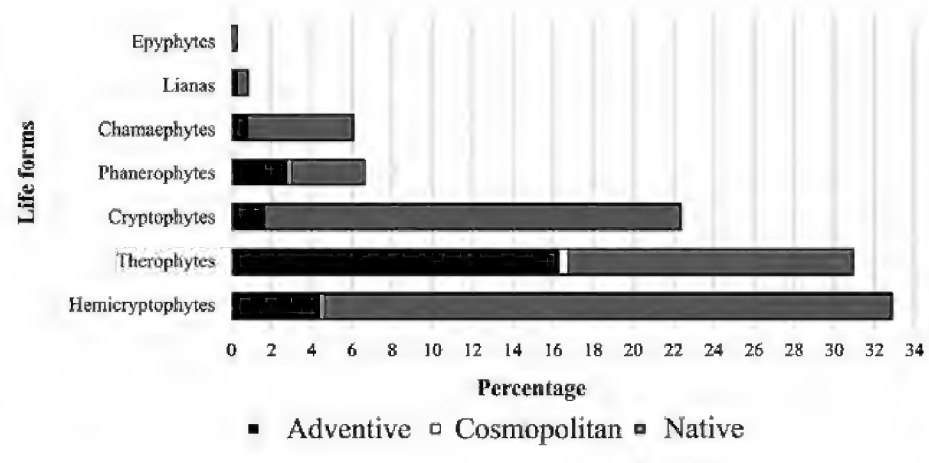

Figure 4. Frequency of different life forms of vascular plant according to its status in the Paititi Natural Reserve.

were newly recorded in Buenos Aires mountain ranges, and 31 native species, mostly threatened according to Delucchi (2006).

Subclass Polypodiidae
Order Polypodiales: Family Pteridaceae: Subfamily Vittarioideae

Genus *Adiantum* L.

***Adiantum raddianum* C. Presl.**
Figure 5

Adiantum raddianum C. Presl (1836): 158—Cabrera (1968): 178; Flora Argentina (2017); Tropicos (2017).
Adiantum cuneatum Langsdorff & Fischer (1810): 23—Capurro (1961): 121.

Cryptophyte, native with wide distribution in the American continent. Least Concern (Delucchi 2006).

Characteristics. Delicate fern; rhizomes cylindrical, covered with brown-yellowish scales. Fronds triangular, pinnately compound, glabrous, with a thin, cylindrical, dark, almost black, glossy petiole. Pinnules alternate, irregular, almost rhombic; apex incised, with base cuneate, veins dichotomous; petioles long, thread-like. Sorus located on edge of pinnules.

Comments. This is a rare species in the study area. This fern grows in shady, humid sites. At the summit, it grows in deep cracks of rocks and also along the shaded banks of the stream. The major difference between *A. raddianum* and *A. chilense* Kaulfuss, which is also frequent in Buenos Aires mountains, is in the shape of the pinnules; the latter species presents reniform pinnules without cuneate bases and with the upper margin entire or with short incisions.

Subclass Magnoliidae
Superorder Lilianae

Order Asparagales: Family Amaryllidaceae: Tribe Gilliesiae

Genus *Nothoscordum* Kunth

***Nothoscordum gaudichaudianum* Kunth**
Figure 6

Nothoscordum gaudichaudianum Kunth (1843): 458—Hurrell (2009b): 44; Flora Argentina (2017); Tropicos (2017).
Nothoscordum grossibulbum Beauverd (1908): 1003.
Allium bivalve (L.) Kuntze var. *gaudichaudianum* (Kunth) Kuntze (1898): 312—Guaglianone (1972): 159–242.
Allium bivalve (L.) Kuntze (1898): 315.

Cryptophyte, native with distribution in the Southern Cone Region of South America; previosly known from the Entre Ríos and Corrientes provinces (Argentina) but not from Buenos Aires province.

Characteristics. Perennial herb to 25 cm tall. Bulb subglobose, 1.5 cm in diameter, with onion odor, without lateral rhizomes. Leaves linear, 1–3 cm long, veins parallel, apex obtuse, 4–18 cm long. Peduncles longer than foliage. Inflorescence: an umbel, with 2–5 flowers, with erect, unequal pedicels; rotate perianth with 6 white tepals with purplish tinge; free filaments. Fruit: a capsule.

Comments. This is a rare species in the study area.

Figure 5. *Adiantum raddianum*. **A.** Plant. **B.** Detail of the sorus that are located on the edge of the pinnules.

Figure 6. *Nothoscordum gaudichaudianum*. **A.** Plant. **B.** Inflorescence and flower detail.

It grows in full sunlight conditions on shallow to moderately deep, damp soils on rocky and grassy slopes with other small to medium-sized species. *Nothoscordum gaudichaudianum* can be distinguished from other *Nothoscordum* species by its erect peduncles, white tepals, free filaments, and bulbs with characteristic onion odor.

***Nothoscordum montevidense* Beauv. ssp. *latitepalum* (Guag.) Ravenna**
Figure 7

Nothoscordum montevidense Beauv. var. *latitepalum* (Guag.) Ravenna (1978): 144—Hurrell (2009b): 49; Flora Argentina (2017); Tropicos (2017).
Nothoscordum montevidense Beauv. var. *latipetalum* Guaglianone (1972): 232.
Nothoscordum montevidense Beauverd (1906): 1011—Cabrera (1968): 515.

Cryptophyte, native with distribution in the Southern Cone Region of South America; previously recorded from Buenos Aires province but not from mountainous areas.

Characteristics. Perennial herb, 5–10 cm tall. Bulb solitary, globose, ca 1 cm in diameter. Sheaths short. Leaves to 10 cm long, parallel-veined, linear, with apex acute. Peduncles erect. Inflorescence: an umbel, with 2–10 flowers. Tepal perianth yellow, 3.5–5 mm long. Anthers to 2 mm long. Fruit: a capsule.

Figure 7. *Nothoscordum montevidense* ssp. *latitepalum*. **A.** Plant. **B.** Flower.

Comments. This is an infrequent species in the study area. It grows in shallow to moderately deep, damp soils on rocky and grassy slopes with other white-flowered *Nothoscordum* species. Cabrera (1968) reported *N. montevidense* from Buenos Aires province but not this subspecies. Hurrell (2009b) reported the existence of 3 subspecies in the Rioplatense region of northwestern Buenos Aires province. Our Paititi specimens belong to *N. montevidensis* ssp. *latitepalum* because they are relatively tall and present flowers with wide yellow tepals.

Order Asparagales: Family Iridaceae: Tribe Tigrideae

Genus *Cypella* Herb.

Cypella herbertii Hooker subsp. *wolffhuegeli* (Hauman) Ravenna

Figure 8

Cypella herbertii Hooker subsp. *wolffhuegeli* (Hauman) Ravenna (1965): 312—Cabrera (1968): 548; Hurrell (2009a): 270; Flora Argentina (2017); Tropicos (2017).

Cypella wolffhuegeli Hauman (1909): 84.

Cypella herbertii Hooker (1826): 2637.

Cryptophyte, endemic to mountain ranges of Buenos Aires province. Vulnerable due to restricted habitat (Delucchi 2006).

Characteristics. Perennial herb. Bulbs subglobose. Peduncles erect, branched, to 1 m tall. Basal leaves scarce, linear in shape, parallel-veined, folded, to 35 cm long, 2.5 cm wide. Inflorescence: a cyme (rhipidium); bracts unequal, with 1–2 flowers; tepals orange-brown, filaments free, styles entire. Fruit: a capsule.

Figure 8. *Cypella herbertii* subsp. *wolffhuegeli*. **A.** Flower. **B.** Leaf detail.

Comments. This is a rare species in the study area. It grows in full sunlight conditions in rock cracks on slopes. It is very similar to *C. herbertii* ssp. *herbertii*, but this last species presents vivid orange tepals and united filaments.

Genus *Gelasine* Herb.

Gelasine elongata (Graham) Ravena

Figure 9

Gelasine elongata (Graham) Ravena (1988): 154—Flora Argentina (2017); Tropicos (2017).

Ferraria elongata Graham (1830): 173.

Gelasine azurea Herbert (1840): 3779—Cabrera (1968): 543.

Cryptophyte, native with distribution in the Southern Cone Region of South America.

Characteristics. Perennial bulbous herb, to 80 cm tall. Basal leaves linear, ca 25 cm long, 3 cm wide, sword-

Figure 9. *Gelasine elongata*. **A.** Plants. **B.** Flower. **C.** Leaf detail.

Figure 10. *Sisyrinchium* sp. **A.** Flowers. **B.** Fruits.

shaped, folded, parallel-veined, semi-coreaceus; superior leaves scarce. Inflorescence: a cyme with 1–3 flowers; tepals blue with dark spots at base. Fruit: a capsule.

Comments. This is an infrequent species in the study area. It grows in full sunlight conditions and deep to moderate deep soils on rocky and grassy slopes. *Gelasine elongate* is the only species of its genus known from Buenos Aires province, and it can be recognized by its folded leaves and blue tepals.

Order Asparagales: Family Iridaceae: Tribe Sisyrinchieae

Genus *Sisyrinchium* L.

***Sisyrinchium* sp.**
Figure 10

Cryptophyte, native.

Characteristics. Perennial herb, 30–50 cm tall. Roots fleshy. Basal leaves numerous, erect, parallel-veined, sharply folded along their midribs, 20–27 cm long. Peduncle winged, with a multiflorous cyme (rhipidium); flowers white to pale yellow, with violet nerves and yellow spots at base, surrounded by purplish tinge; tepals with emarginate-apiculate apex. Filaments entirely connate into a glabrous column; base of the filaments coverd with yellow glands. Fruit: a globose or obovate capsule.

Comments. This is a frequent species in the study area. It grows in full sunlight conditions and shallow to moderately deep soils on rocky and grassy slopes. The specimens of the Paititi Reserve have fleshy roots and their filaments are grouped forming a column. The base of this column is covered with glands so it would correspond to *Sisyrinchium platense* I.M. Johnst. or *S. pachyrhizum* Baker (Cabrera 1968, Roitman and Hurrell 2009). However, in *S. platense* the tepals are violet to pale blue, and in *S. pachyrhizum* they are vivid yellow with brown spots. As neither of the described species for Buenos Aires province present tepals with the colors seen in our specimens, we have not identified our material to species.

Order Asparagales: Family Orchidaceae: Tribe Chloraeeae

Genus *Bipinnula* Commerson

***Bipinnula pennicillata* (Rch. f.) Cisternas & Salazar**
Figure 11

Figure 11. *Bipinnula pennicillata*. Flower.

Bipinnula pennicillata (Rchb. f.) Cisternas & Salazar *ex* Cisternas et al. (2012): 10—Flora Argentina (2017); Tropicos (2017).

Geoblasta pennicillata (Rchb. f.) Hoehne *ex* Correa (1968): 71—Cabrera (1968): 591; Hurrell (2009a): 348.

Chloraea pennicillata Reichenbach. f. (1878): 51.

Cryptophyte, native with distribution in the Southern Cone Region of South America. Vulnerable due to restricted habitat (Delucchi 2006).

Characteristics. Terrestrial herb, to 30 cm tall including inflorescence. Roots narrow, also tuberous roots. Basal leaves 3 or 4, with elliptic- to ovate-lanceolate in shape, to 10 cm long, larger than caulinar leaves. Inflorence 1-flowered, exceptionally 2-flowered; flower pale green, with reticulate dark green veins and an insect-like labellum with a darker, blackish-brown, apical part; labellum sessile, smooth, shiny, greenish, convex, its basal part covered by short, slender, retrorse, pale green hairs; central disk with 6 or 7 naked ridges; apex covered with short, clavate, blackish-brown and yellow appendices. Fruit: a capsule.

Comments. This is an infrequent species in the study area. It grows in full sunlight conditions in shallow soils on grassland slopes and on summits. *Bipinnula pennicillata* can be recognized from other Orchidaceae by its 1-flowered inflorescence and its large flowers with rhombic, succulent labellum and sepals without appendices.

Genus *Chloraea* Lindl.

***Chloraea membranacea* Lindley**
Figure 12

Chloraea membranacea Lindley (1840): 401—Cabrera (1968): 588; Hurrell (2009a): 344; Flora Argentina (2017); Tropicos (2017).

Cryptophyte, native with distribution in the Southern Cone Region of South America.

Characteristics. Terrestrial herb, 40–70 cm tall, including inflorescence, with folded, fleshy roots. Basal leaves 5 or 6, elliptic in shape, to 15 cm long, with subacute apex. Inflorescence: a raceme; flowers greenish-white; labellum margin entire or slightly trilobed, covered by cilindrical, capitated, darker, blackish-brown to black appendices. Stamens with anthers inclined. Fruit: a capsule.

Comments. This is a rare species in the study area. It grows in damp soils, in shady places under trees. *Chloraea membranacea* is the only species of *Chloraea* known from Buenos Aires province and is distinguished from other Orchidaceae by its folded, thickened, fleshy roots, and its inclined anthers.

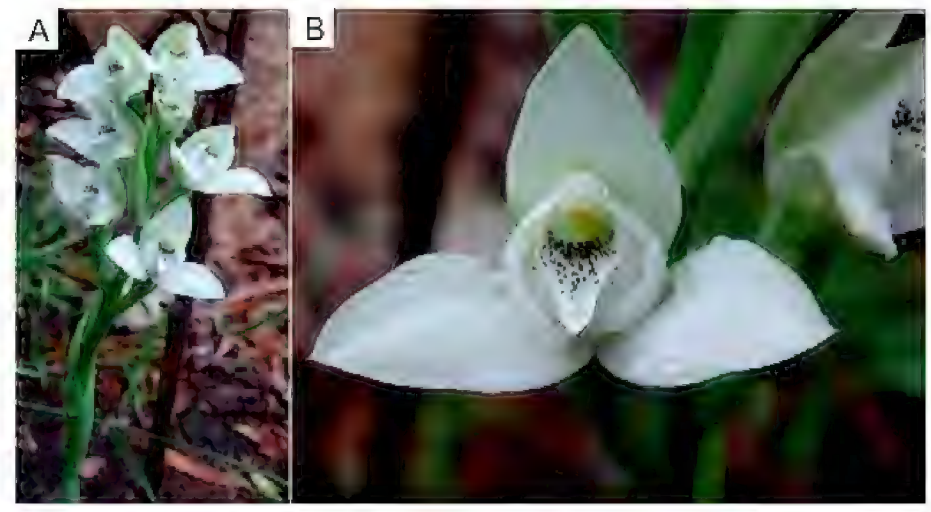

Figure 12. *Chloraea membranacea.* **A.** Inflorescence. **B.** Flower.

Order Poales: Family Bromeliaceae: Tribe Tillandsieae

Genus *Tillandsia* L.

***Tillandsia bergeri* Mez**

Figure 13

Tillandsia bergeri Mez (1916): 254—Cabrera (1968): 455; Flora Argentina (2017); Tropicos (2017).

Epiphyte, native with distribution in the Southern Cone Region of South America. Vulnerable for reasons unknown (Delucchi 2006).

Characteristics. Perennial plant, to 30 cm tall, with branched roots, and stems covered with sheathed leaves. Leaves lanceolate, forming rosettes, covered with grey scales. Peduncles short, with bracts. Inflorescence: a spike with 6–10 flowers, 25–30 mm long; floral bracts and sepals green to pink; petals blue. Fruit: capsule.

Comments. This is an infrequent species in the study area. It grows in full sunlight conditions in cracks of rocks on summits, where it forms hanging clumps. It is the only species of the genus that has been found in the Tandilia mountain range system. It is the only lithomorphic species found in rocky outcrops and presents dense roots and leaves, multiflorous spikes and green to pink floral bracts and sepals, not reddish like *T. aëranthos* (Loisel) L. B. Smith.

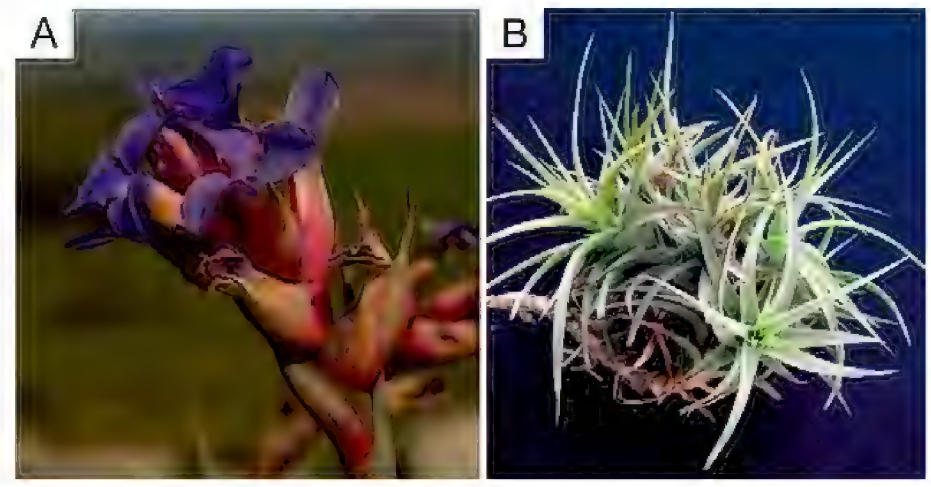

Figure 13. *Tillandsia bergeri.* **A.** Inflorescence. **B.** Leaf detail.

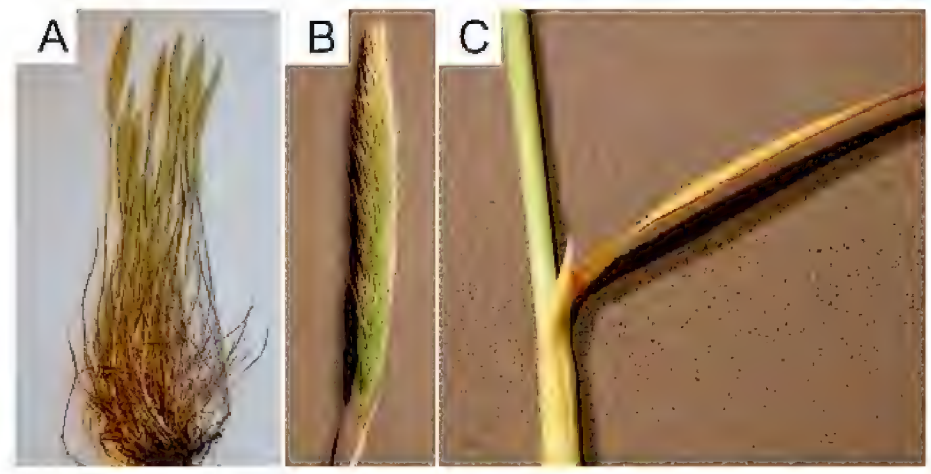

Figure 14. *Bromidium tandilense.* **A.** Plant. **B.** Inflorescence. **C.** Leaf detail.

Order Poales: Family Poaceae: Tribe Poeae

Genus *Bromidium* Nees & Meyen

***Bromidium tandilense* (Kuntze) Rúgolo**

Figure 14

Bromidium tandilense (Kuntze) Rúgolo (1982): 2002—Zuloaga et al. (2012b): 260; Flora Argentina (2017); Tropicos (2017).

Agrostis tandilensis (Kuntze) Parodi (1943): 158—Cabrera (1970): 231.

Bromidium hygrometricum var. *tandilense* Kuntze (1898): 343.

Therophyte, native with distribution in the Southern Cone Region of South America; previously reported from Buenos Aires province but not from mountainous areas.

Characteristics: Annual herb, 5–50 cm tall. Leaves linear, parallel-veined, to 10 cm long, green, glabrous, with membranaceous ligule. Inflorescence: a spike-like panicle, to 8 cm long, with many 1-flowered spikelets, ca 3 mm long; glumes unequal; lemma with 4.5–6 mm long awns; palea absent. Fruit: a fusiform caryopsis.

Comments. This is an infrequent species in the study area. It grows in shallow soils and rock cracks on the summits. It is similar to *Bromidium hygrometricum* (Ness) Ness & Meyen, which also has been found in Buenos Aires province, but *B. hygrometricum* has a glabrous lemma.

Order Poales: Family Poaceae: Tribe Danthonieae

Genus *Danthonia* DC

***Danthonia montevidensis* Hack. & Arechav.**

Figure 15

Danthonia montevidensis Hack. & Arechav. (1896): 369—Zuloaga et al. (2012a): 229; Flora Argentina (2017); Tropicos (2017).

Hemicryptophyte, native with distribution in the Southern Cone Region of South America; previously known from Buenos Aires province but not from mountainous areas. Available information is inadequate to make a direct or indirect assessment of its risk of extinction (Data Deficient) (Delucchi 2006).

Characteristics: Perennial, caespitose species herbs, 15–60 cm tall. Young leaves are folded to rolled. Leaves parallel-veined, green, glabrous, to 30 cm long. Inflores-

Figure 15. *Danthonia montevidensis.* **A.** Plant with two inflorescences (arrows). **B.** Flower and awn detail (arrow).

cence: a loose pubescence panicle, to 15 cm long, with multiflorous lanceolate spikelets. Glumes 16–30 mm long, outgrowing flower sets. Spikelets with 5–10 flowers; lemma 2.5–4 mm long, ovate-lanceolate, with bifid apex. Central twisted awn brown or colorless, 15–23 cm long, inserted at bifurcation point of lemma. Fruit: an obovate caryopsis.

Comments. This is a frequent species in the study area. It grows in shallow to moderately deep soils on slopes, in grasslands, and around the pond. It is similar to *Danthonia cirrata* Hack. & Arechav., which also has been found in the Paititi Reserve, but the lemma of the latter species has the lateral lobes longer than the undivided part.

Order Poales: Family Poaceae: Tribe Meliceae

Genus *Melica* L.

Melica rigida Cavanilles

Figure 16

Melica rigida Cavanilles (1799): 47—Zuloaga et al. (2012b): 94; Flora Argentina (2017); Tropicos (2017).

Melica aurantiaca Desr. *ex* Lam. var. *rigida* (Cav.) Papp (1928): 352—Zuloaga et al. (2012b): 94.

Melica brasiliana auct. non Arduino (1764): 17.

Melica papilionacea auct. non. L. (1767): 31.

Cryptophyte, native with distribution in the Southern Cone Region of South America.

Characteristics. Perennial, caespitose species, 20–80 cm tall, with short rhizomes and erect culms. Young leaves are folded to rolled. Leaves parallel-veined, green, glabrous to hispid, to 9 cm long. Inflorescence: a linear, loose panicle, white with purplish tinge, compressed, multiflorous spikelets, to 11 mm long; glumes unequal; lemma papery with retrorse hairs; palea with glabrous lower surface. Fruit: an elliptic caryopsis.

Figure 16. *Melica rigida.* **A.** Plants. **B.** Spikelet detail.

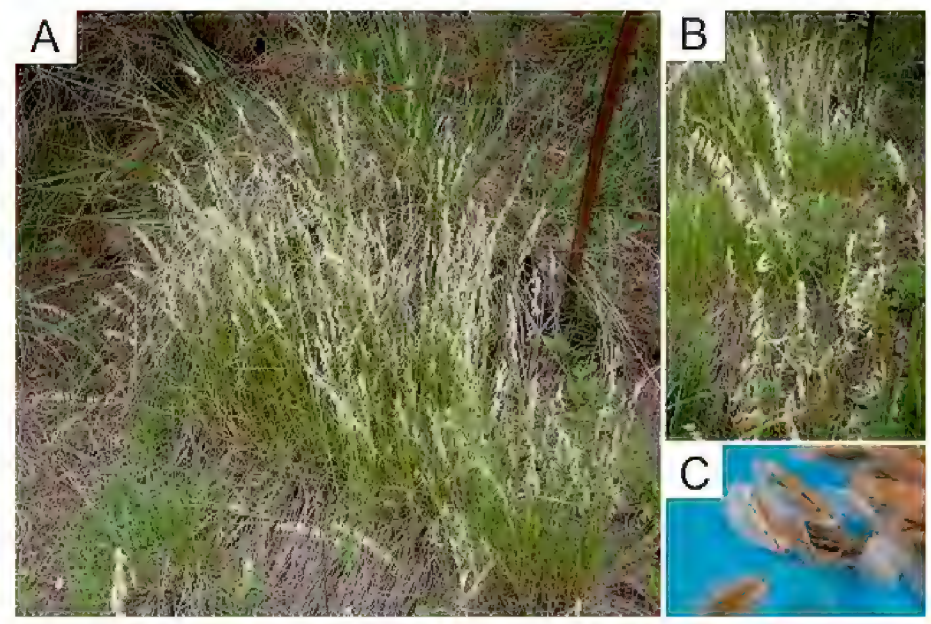

Figure 17. *Melica parodiana.* **A.** Plant. **B.** Inflorescence detail. **C.** Spikelet detail.

Comments. This is a frequent species in the study area. It grows in shallow to moderately deep soils and in rock cracks on the summits and on rocky or grassy slopes. It is similar to *M. brasiliana* Ard. However, the latter species presents 11–17 mm long spikelets, which are longer than in *M. rigida* (Torres 1980, Zuloaga 2012b).

Melica parodiana Torres

Figure 17

Melica parodiana Torres (1968): 202—Cabrera (1970): 305; Zuloaga et al. (2012b): 94; Tropicos (2017).

Cryptophyte, native with distribution in the Southern Cone Region of South America. Vulnerable, reasons unknown (Delucchi 2006).

Characteristics. Perennial, caespitose species, with erect to slightly stretched culms, up to 30 to 50 cm tall, with roots on basal nodes. Leaves parallel-veined, folded to convolute, green, pubescent, up to 15 cm long, with retrorse hairs and membranous ligule. Inflorescence: a linear, loose panicle with white, compressed, multiflorous spikelets; glumes unequal; lemma papery with retrorse hairs and palea with glabrous lower surface. Fruit: an elliptic caryopsis.

Comments. This is a frequent species in the study area. It grows in shallow to moderately deep soils and in rock cracks on summits and on rocky and grassy slopes. It is similar to *M. rigida*, which has also been found in the Paititi Reserve, but *M. rigida* has glabrous abaxial leaf surface.

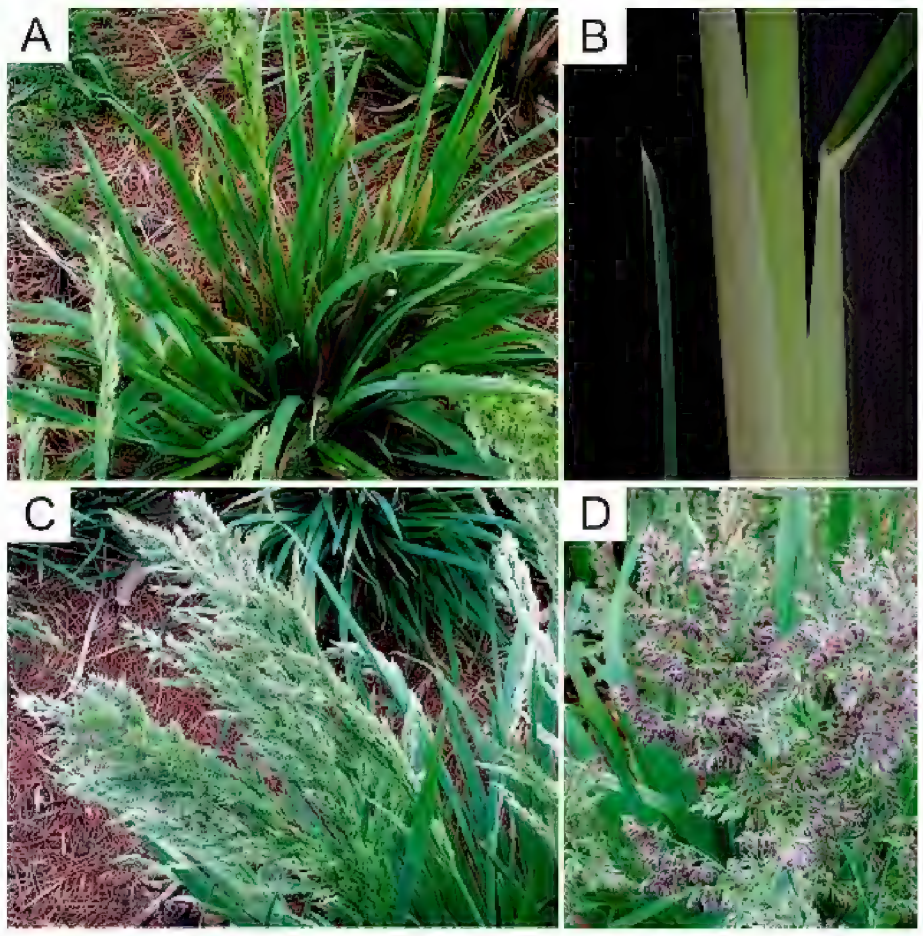

Figure 18. *Poa iridifolia.* **A.** Plant. **B.** Leaf detail. **C.** Female inflorescence. **D.** Male inflorescence.

Order Poales: Family Poaceae: Tribe Poeae

Genus *Poa* L.

***Poa iridifolia* Hauman**

Figure 18

Poa iridifolia Hauman (1917): 407—Cabrera (1970): 115; Zuloaga et al. (2012b): 311; Flora Argentina (2017); Tropicos (2017).

Poa lanigera Nees var. *tandilensis* Hackel (1911): 152.

Cryptophytes, endemic to mountain ranges of Buenos Aires province. Vulnerable for reasons unknown (Delucchi 2006).

Characteristics. Dioecious, perennial, caespitose species, to 1 m tall, with erect, 1- or 2-node culms. Leaves parallel-veined, conduplicate, coriaceous, glaucous to glaucous-green, with rough margins and midribs. Basal innovations flabellate, leaf-sheaths compressed. Leaves plane, with a hooded apex, to 50 cm long; ligule membranous. Inflorescence: a compact panicle, to 20 cm long; female and male florets similar, multiflorous, pubescent, 3.5–6 mm long. Fruit: a fusiform caryopsis.

Comments. This is an infrequent species in the study area. It grows in shallow soils and in rock cracks on slopes and summits. It can be differentiated from other *Poa* species of the area by its caespitose, glaucouse foliage and by its conduplicate leaves with flabellate basal innovations, as in several *Iris* species.

Superorder Rosanae

Order Fabales: Family Fabaceae: Tribe Mimoseae

Genus *Mimosa* L.

***Mimosa rocae* Lorentz & Niederlein**

Figure 19

Mimosa rocae Lorentz & Niederlein (1881): 213—Cabrera (1967): 143; Flora Argentina (2017); Tropicos (2017).

Chamaephytes; native with distribution in the Southern Cone Region of South America. Vulnerable, reasons unknown (Delucchi 2006).

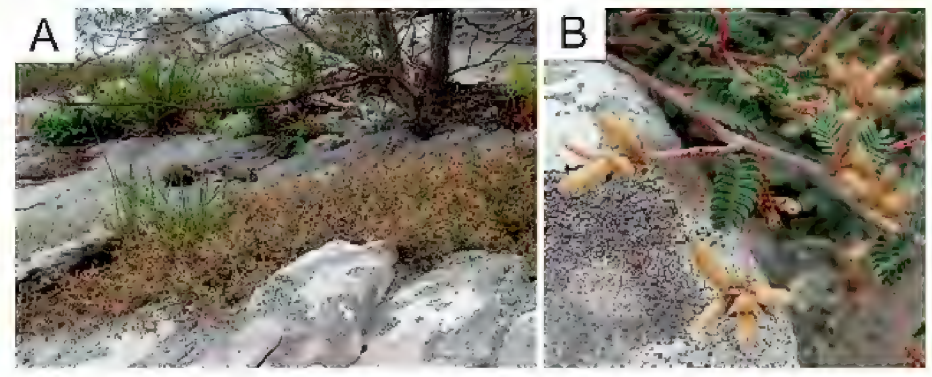

Figure 19. *Mimosa rocae.* **A.** Plant. **B.** Detail of stems, leaves and legumes.

Characteristics. Small shrubs covered with grey scales and with many creeping reddish branches. Leaves bipinnate, 0.3–1.5 cm long, with 1 pair of pinnae; leaflets imbricated, grey, 1–4 mm long, with stellate hairs. Inflorescence dense and globose, to 2 cm long, with yellow actinomorphic flowers. Fruits tomentose, with pale brown loments that break apart at 1–4 constrictions.

Comments. This is an infrequent species in the study area. It grows in full sunlight conditions in cracks of rocks on the summits. In the mountains of the area, *M. tandilensis* Speg. can also be found but differs from *M. rocae* by presenting prickles on the stems and purplish pink flowers.

Order Fabales: Family Fabaceae: Tribe Vicieae

Genus *Lathyrus* L.

***Lathyrus hookeri* Don**

Figure 20

Lathyrus hookeri Don (1832): 332—Cabrera (1967): 616; Flora Argentina (2017).

Lathyrus hookeri Don f. *albiflora* (O. Kuntze) Burkart, *ex*: Cabrera (1963): 616.

Lathyrus sessilifolius Hooker & Arnott (1831): 20.

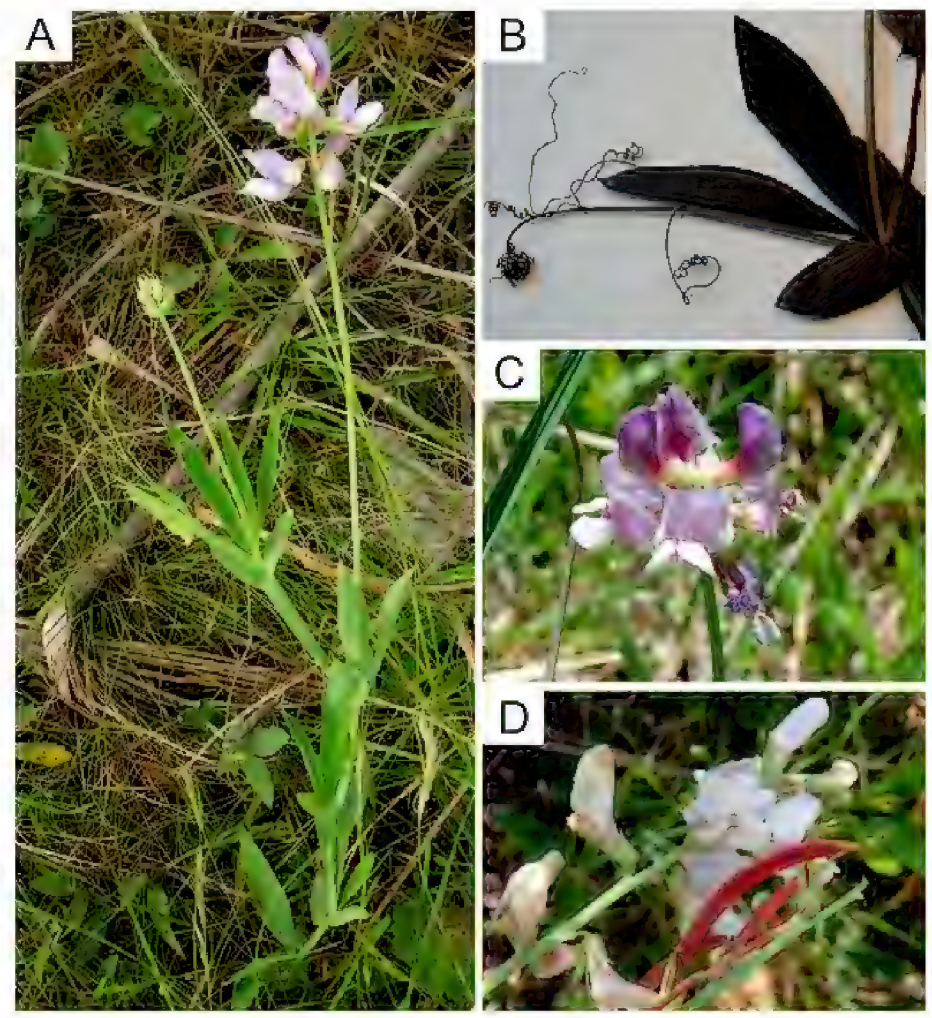

Figure 20. *Lathyrus hookeri.* **A.** Plant. **B.** Detail of leaves that have turn black after being dried. **C.** Specimen with white keel and violet standard and wings. **D.** Specimen with white petals.

Cryptophytes; native with distribution in the Southern Cone Region of South America.

Characteristics. Perennial twining herb that turns black when it dries. Rhizomes and decumbent tetragone stems with 2 wings in upper stems. Leaves sessile or subsessile, pinnately compound, with 2 oval, slightly glaucous, mucronate leaflets with notable veins, 1–7 terminal tendrils, and wide sagittate stipules. Inflorescence: a raceme with 5–10 flowers of lilac to violet petals. Fruit: a linear and erect legume, which turns black at maturity.

Comments. This is a frequent species in the study area. It grows in intermediate to full sunlight, on slopes with moderately deep, damp soils. Many species of the genus *Lathyrus* thrive in the mountain ranges of this region. *Lathyrus hookeri* can be recognized by the presence of very short petioles (or even sessile leaves) and by its fruit that turns black when dried. In the Paititi Reserve, specimens with violet petals were found, which is typical, and specimens with white petals were also found that, according to Cabrera (1967), would correspond to *L. hookeri* Don f. *albiflora* (O. Kuntze) Burkart. Nowadays, *L. hookeri* f. *albiflora* is synonym of *L. hookeri* Don (Flora Argentina 2017). Besides the white flower specimens, plants with white keel and violet standard and wings were also found. This would be the first record of this variant of *L. hookeri*.

Lathyrus pusillus Elliot

Figure 21

Lathyrus pusillus Elliot (1823): 223—Flora Argentina (2017); Tropicos (2017).

Lathyrus crassipes Gillies, *ex* Hook. & Arn. (1830): 198—Cabrera (1967): 609.

Therophytes, native with wide distribution in the American continent; previously recorded from Buenos Aires province but not from mountainous areas.

Characteristics. Annual twining herb, to 50 cm tall. A glabrous plant with short-winged stems. Leaves pinnately compond, with 2 linear leaflets and a terminal tendril, split into 1–3 segments; petiole 0.5–1.5 cm long, stipules sagittate. Inflorescence: racemes, with 1–3 flowers, with glabrous sepals and white to blue petals. Fruit: a linear and erect legume, turning brown at maturity.

Comments. This is an infrequent species in the study area. It grows in intermediate to full sunlight on slopes with moderately deep, moist soils. *Lathyrus pusillus* can be recognized from the many other *Lathyrus* species in the region by the presence of sagittate stipules and brown legumes that do not turn black when dry.

Genus *Vicia* L.

Vicia linearifolia Hooker & Arnott

Figure 22

Vicia linearifolia Hooker & Arnott (1830): 20—Cabrera (1967): 588; Flora Argentina (2017).

Therophytes, native with distribution in the Southern Cone Region of South America; previously recorded from Buenos Aires province but not from mountainous areas.

Characteristics. Annual, delicate, twining herb, 20–40 cm tall, glabrous, with narrow, angular stems. Leaves pubescent, pinnately compound, with 3–5 linear to filiform pairs of leaflets, 0.2–3 mm wide; with a terminal, simple tendril, split into 1–3 segments; petiole short or even absent; stipules semi-sagittate, with a spur. Flowers solitary in axils of stems, exceptionally in a terminal, 2-flowered cyme; corollas pale blue to blue. Fruit: an erect or pendent, pubescent, brown legume.

Comments. This is an infrequent species in the study area. It grows in shady sites under trees in damp soils on slopes. It differs from other *Vicia* species by the presence of solitary flowers (exceptionally 2) that are up to 4 mm long.

Figure 21. *Lathyrus pusillus*. Detail of flower and leaves.

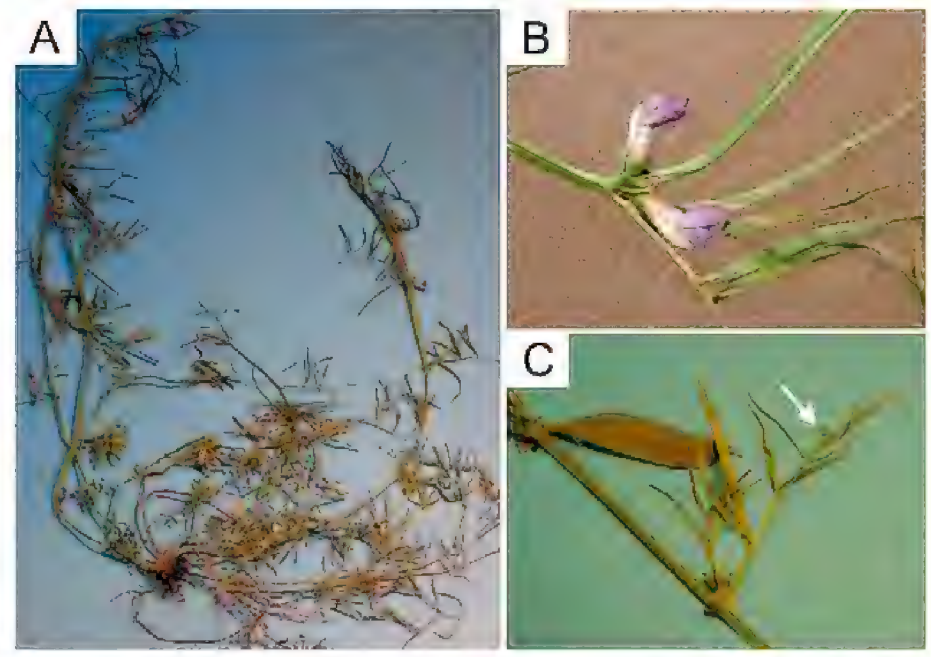

Figure 22. *Vicia linearifolia*. **A.** plant. **B.** detail of the flowers. **C.** detail of legume, leaf and simple tendril (arrow).

Vicia setifolia Kunth var. *bonariensis* Burkart

Figure 23

Vicia setifolia Kunth var. *bonariensis* Burkart (1966): 595—Cabrera

Figure 23. *Vicia setifolia* var. *bonariensis*. **A.** Plant. **B.** Detail of leaf and split tendril (arrow). **C.** detail of the flowers.

(1967): 595; Flora Argentina (2017); Tropicos (2017).
Vicia setifolia Kunth (1823): 500–501.

Cryptophytes, endemic to mountain ranges of Buenos Aires province. Vulnerable, reasons unknown (Delucchi 2006).

Characteristics. Perennial rhizomatous twining herb. Stems pubescent, ascendent, 40–80 cm high, angulate to bi-winged. Leaves pubescent, pinnately compound, with 3–5 linear-lanceolate to oblong pairs of leaflets, with a terminal tendril, split into 1–3 segments; petiole short; stipules semi-sagittate, with acute apex and a spur. Inflorescence: a raceme with 4–8 flowers, with blue-violet corolla and pubescent, dentate calyx. Fruit: a compressed linear legume with a recurved apex.

Comments. This is an infrequent species in the study area. It grows in intermediate and full sunlight on slopes and in grasslands in moderately deep, moist soils. This perennial species differs from other *Vicia* species by the presence of peduncle racemes with flowers smaller than 1.4 cm long, and pubescent leaves with 3–5 linear-lanceolate to oblong pairs of leaflets.

Order Fabales: Family Polygalaceae: Tribe Polygaleae

Genus *Polygala* L.

***Polygala australis* A.W. Bennett**
Figure 24A, B
Polygala australis A.W. Bennett (1879): 203—Cabrera (1965a): 64; Flora Argentina (2017); Tropicos (2017).
Polygala pamparum Spegazzini (1901b): 240.

Therophytes, native with distribution in the Southern Cone Region of South America.

Characteristics. Annual or biennial herb, with erect or prostrate leafy stems, 5–15 cm tall. Leaves simple, linear in shape, ca 6–8 cm long and 1–1.7 mm wide. Inflorescence: a spike-like raceme, to 2.5 cm long, with zygomorphic, perfect flowers, ca 2 mm long, with white petals. Fruit: an orbicular capsule that contains seeds with a ring of hairs.

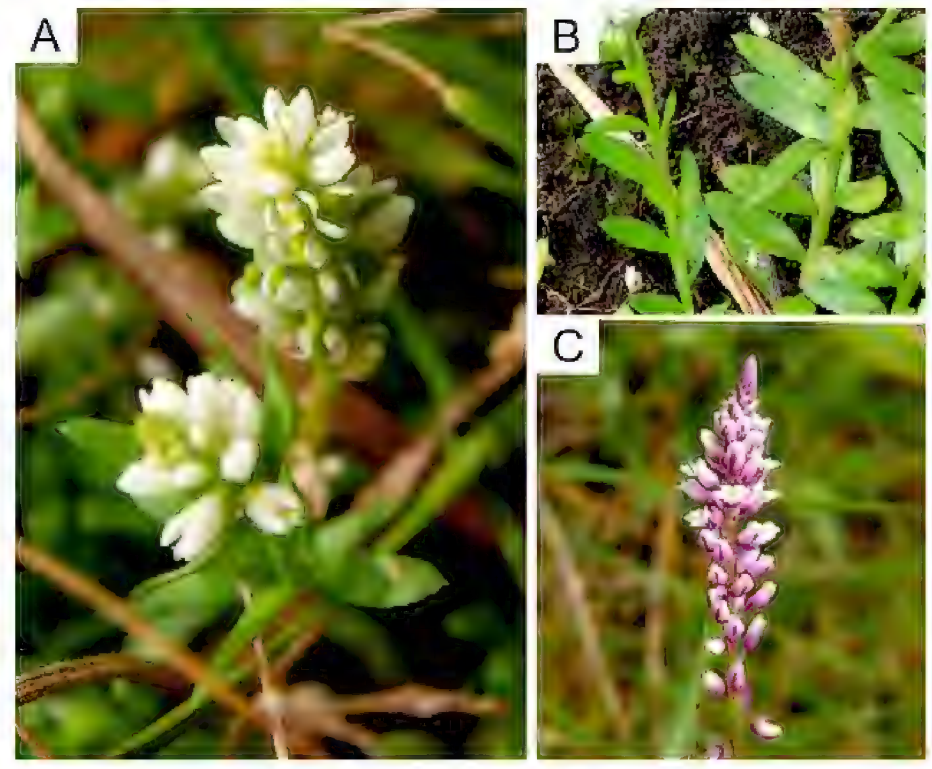

Figure 24. A. Detail of *Polygala australis* flowers. **B.** Detail of *P. australis* leaves. **C.** Detail of *P. linoides* flowers.

Comments. This is a frequent species in the study area. It grows in shallow, damp soils on grassland slopes and on the summits. *Polygala australis* shares habitat with *P. linoides* Poir., which, however, is a perennial herb with lilac flowers (Fig. 24C) and presents seeds without a ring of hairs.

Order Malvales: Family Malvaceae: Tribe Hibisceae

Genus *Pavonia* Cav.

***Pavonia cymbalaria* A. St.-Hil. & Naudin**
Figure 25
Pavonia cymbalaria A. St.-Hil. & Naudin (1842): 42—Cabrera (1965a): 176; Flora Argentina (2017); Tropicos (2017).

Chamaephytes, native with distribution in the Southern Cone Region of South America.

Characteristics. Subshrub with many creeping branches, to 60 cm long, and densely pubescent ascending stems. Leaves with stipulates; ovate to triangular, margins crenate, glaucous, covered with short hairs. Flowers solitary; epicalyx with oval bracts; corolla with pink-lilaceous petals; nerves and basal stained red to violet. Fruit: a schizocarp, with reticulated mericarps.

Comments. This is a frequent species in the study area. It grows in shallow to moderately deep soils on slopes, including grassy slopes, and on summits. In the mountain ranges also grows *Pavonia glechomoides* A.St. Hil., which differs from *P. cymbalaria* by the presence of long hair pubescence, suborbiculate leaves, thin epicalyx bracts, and white or pinkish petals with the basal stain purple.

Order Myrtales: Family Myrtaceae: Tribe Myrteae

Genus *Psidium* L.

***Psidium salutare* (H.B.K.) O. Berg var. *mucronatum* (Cambess.) Landrum**
Figure 26
Psidium salutare (H. B. K.) O. Berg var. *mucronatum* (Cambess.) Landrum (2003): 1463—Flora Argentina (2017); Tropicos (2017).
Psidium luridum (Sprengel) Burret (1941): 484—Cabrera (1965a): 305.

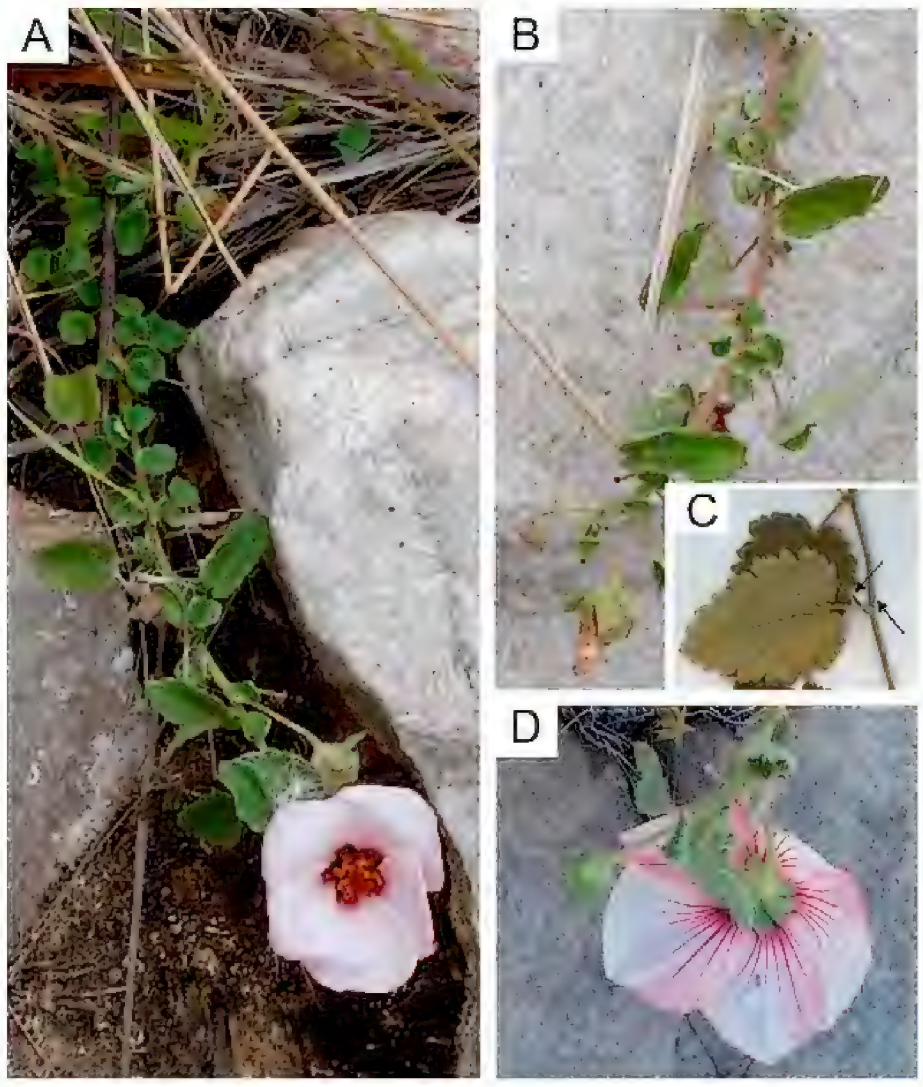

Figure 25. *Pavonia cymbalaria*. **A.** Flower. **B.** Stem and leaves. **C.** Detail of the leaves and stipulates (arrows). **D.** Detail of the back of the petals.

Figure 26. *Psidium salutare* var. *mucronatum*. **A.** Stems and flowers. **B.** Immature fruits.

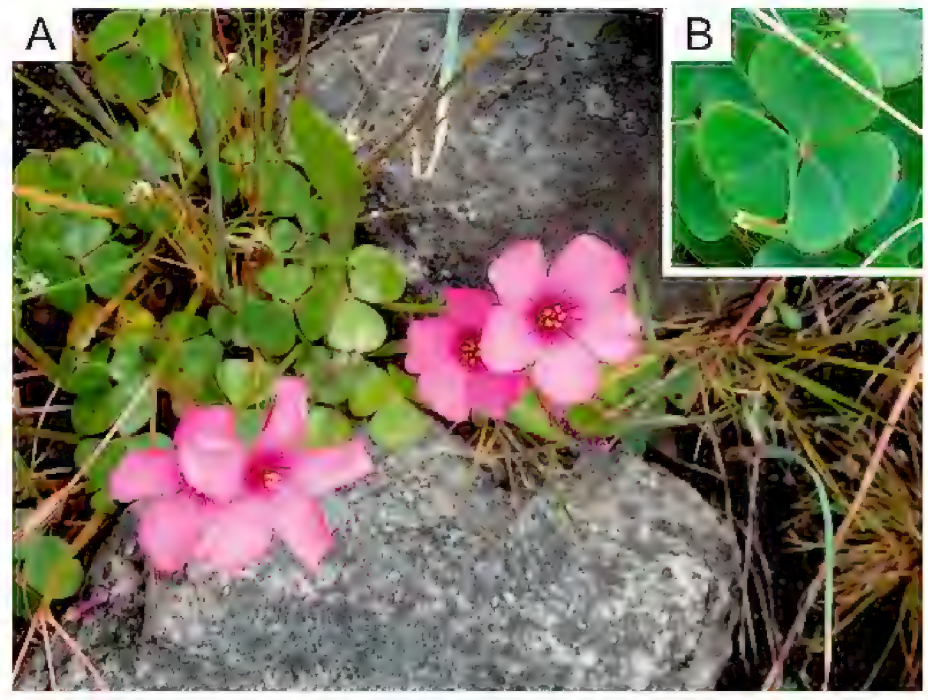

Figure 27. *Oxalis brasiliensis*. **A.** Plant. **B.** Leaflet detail.

Myrtus mucronata Cambessèdes *ex* A. St. Hilaire (1829): 294.
Myrtus salutaris Kunth *ex* H.B.K (1823): 132.

Cryptophytes, native with distribution in the Southern Cone Region of South America.

Characteristics. Aromatic, dwarf shrub, to 10–50 cm tall, with rhizomes and many creeping branches. Leaves opposite, elliptic, with apex acuminate. Flowers solitary, axillary, with 5 white petals, 5 sepals, numerous stamens; pedicels shorter than leaves. Fruit: a globose, green to red berry with persistent calyx.

Comments. This is a frequent species in the study area. It grows in shallow soils and in rock cracks on summits and in bare and grassy slopes. In mountain ranges it grows as a small shrub, to 20 cm tall. It is the only species of *Psidium* occurring in Buenos Aires province. It is recognized from other species of Mirtaceae by its creeping form and the number of sepals.

Order Oxalidales: Family Oxalidaceae

Genus *Oxalis* L. Subsection Austro-Americanae

***Oxalis brasiliensis* G. Lodd, C. Lood & W. Lood.**
Figure 27

Oxalis brasiliensis G. Lodd, C. Lood & W. Lood *ex* Hildebrand (1884): 1962—Lourteig (2000): 201; Flora Argentina (2017); Tropicos (2017).

Oxalis macachin Arechav. (1898) *ex* Arechavaleta (1900): 219—Cabrera (1965a): 6.

Figure 28. A. Plant of *Colletia paradoxa*. **B.** Stems and flowers of *C. paradoxa*. **C.** Fruits of *C. paradoxa*. **D.** Stems of *Colletia spinosissima*.

Cryptophytes, native with wide distribution in the American continent.

Characteristics. Perennial herb with pivoting and fleshy roots. Bulb globose, covered with scales from the leaf sheaths. Leaves long, petiolated, trifoliate, pubescent and arranged in a basal rosette. Leaflets semi-fleshy, obovate shape and with subtle emarginated apex. Inflorescence: an umbel, with 3–5 actinomorphic flowers with five pink to purple petals and five sepals. Fruit: a cylindrical capsule.

Comments. This is a very frequent species in the study area. It grows in grassy slopes, cracks, and rocky outcrops on the slopes and on the summit. It differs from other *Oxalis* that have also been found in mountain ranges, by its simple bulb, leaflet with subtle emarginated apex and inflorescence with at least 3 pinkish flowers.

Order Rosales: Family Rhamnaceae: Tribe Colletiae

Genus *Colletia* Commers

***Colletia paradoxa* (Spreng.) Escalante**

Figure 28A–C

Colletia paradoxa (Spreng.) Escalante (1946): 219—Cabrera (1965a): 163; Tortosa (1995): 4; Flora Argentina (2017); Tropicos (2017).

Condalia paradoxa Sprengel (1825a): 825.

Colletia cruciata Gillies & Hooker (1829): 152.

Phanerophytes; native with wide distribution in the Southern Cone Region of South America. Least Concern (Delucchi 2006).

Characteristics. Rhizomatous, glaucous shrub, to 3 m tall. Spines triangular, compressed, decussate, without marked leaf nodes. Leaves ovate–lanceolate, to 7 mm long, promptly deciduous. Inflorescence: fascicle with 2–9 flowers. Flowers white, ca 1 cm long; sepals oblong-lanceolate, reflexes; corolla absent. Fruit: 3-locular capsule.

Comments. This is a very frequent species in the study area. It grows in intermediate and full sunlight conditions on grasslands and on slopes in moderately deep, moist soils. It also grows under the trees and in cracks of the slopes and summit. This species could be confused with other Rhamnaceae that are frequently found in the mountain ranges of Buenos Aires province: *Colletia spinosissima* J. F. Gmel. and *Discaria americana* Gillies & Hook. These species differ from *C. paradoxa* in vegetative morphologic characters. *Colletia spinosissima* has dark yellowish-green branches and cylindrical spines (Fig. 28D), while *D. americana* has leaf nodes with a transversal mark (Tortosa 1995).

Superorder Caryophyllanae
Order Caryophyllales: Family Cactaceae: Tribe Trichocereeae

Genus *Gymnocalycium* Pfeiff.

***Gymnocalycium gibbosum* (Haw.) Pfeiffer**

Figure 29

Gymnocalycium gibbosum (Haw.) Pfeiffer *ex* Mittler (1844): 124—Cabrera (1965b): 285; Flora Argentina (2017); Tropicos (2017).

Cactus gibbosus Haworth (1812): 173.

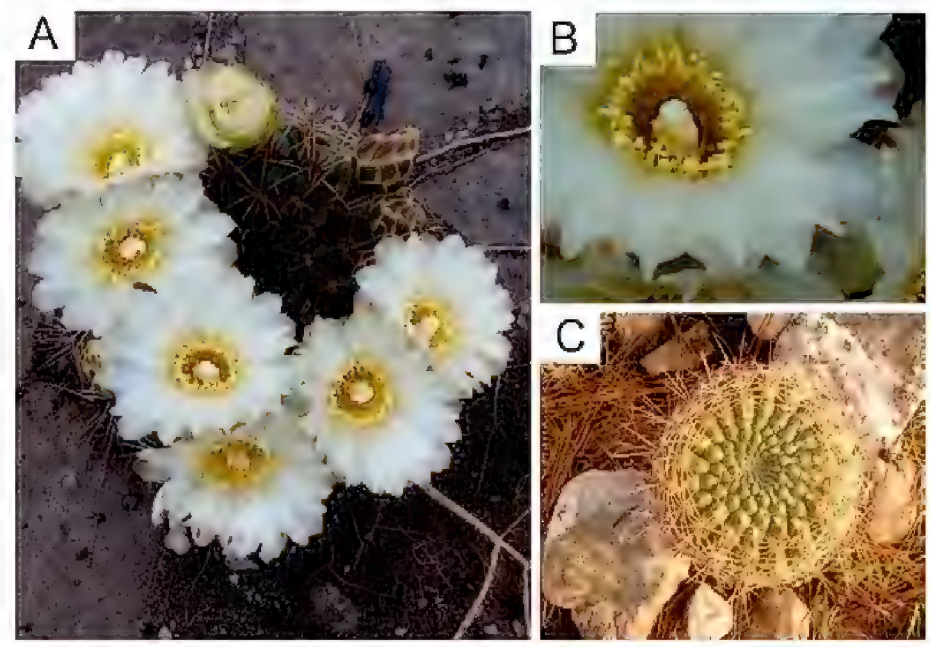

Figure 29. *Gymnocalycium gibbosum*. **A.** Plant at blooming. **B.** Flower. **C.** Plant in vegetative stage.

Gymnocalycium platense (Speg.) Britton & Rose (1922): 163—Cabrera (1965b): 286.

Gymnocalycium brachypetalum Spegazzini (1925): 139—Cabrera (1965b): 286.

Chamaephytes; native with wide distribution in the Southern Cone Region of South America. Vulnerable, reasons unknown (Delucchi 2006).

Characteristics. Perennial, glaucous to green herb with greatly enlarged, globose stem, to 20 cm long, 10 cm wide, and 12–16 lobed ribs. Areoles with 7–15 rigid spines. Flowers located in the superior areoles, 6 cm wide. Perianth white; external scales green, with ovate shape and acute apex. Fruit: fusiform or piriform shape.

Comments. This is a frequent species in the study area. It grows in full sunlight conditions in cracks on the slopes. It differs from other Cactaceae from the study area by the color of the flowers; *Wigginsia* and *Parodia* species have yellow flowers, while *G. gibbosum* has white flowers.

Superorder Asteranae
Order Apiales: Family Apiaceae: Tribe Saniculeae

Genus *Eryngium* L.

***Eryngium regnellii* Malme**

Figure 30

Eryngium regnellii Malme (1904): 9—Calviño & Martínez (2007): 71; Flora Argentina (2017); Tropicos (2017).

Hemicryptophytes, native with wide distribution in the Southern Cone Region of South America.

Characteristics. Perennial herbs with rhizomes and erect branches, to 2 m tall. Leaves glabrous, membranous; basal leaves flaccid, linear, with parallel veins and appressed, solitary bristles in the margin (frequently 2 at the base), to 1 m long and 15 mm wide, larger than the caulinar leaves. Inflorescence: a dichotomous cyme, with ovoid, greenish-white capitulums (1.2 × 1 cm). Fruit: a schizocarp composed of 2 mericarps with lateral scales and vesicles on the upper lower surface, rare or absent in the base.

Comments. This is a frequent species in the study area. It grows in full sunlight conditions, in moderately deep, damp soils and in cracks on the slopes. Up to 2007, *E. regnellii* was confused with *E. stenophyllum* Urb.

Figure 30. *Eryngium regnellii*. **A.** Plant. **B.** Detail of the presence of solitary bristles in the leaf margin. **C.** Lateral inflorescences. **D.** Vesicles on the upper back of the mericarp (arrow).

(Calviño and Martínez 2007), a species reported from Buenos Aires province. *Eryngium stenophyllum* differs from *E. regnellii* in leaf and mericarp characteristics. It presents coriaceous leaves with 1–3 bristles that are up to 15 mm long at the margin, and mericarps with lateral free scales and a naked lower surface.

Order Asterales: Family Asteraceae: Tribe Astereae

Genus *Baccharis* L.

***Baccharis dracunculifolia* DC ssp. *tandilensis* (Speg.) Giuliano**

Figure 31

Baccharis dracunculifolia DC ssp. *tandilensis* (Speg.) Giuliano *ex* Zuloaga et al. (2014a): 71—Flora Argentina (2017).

Baccharis tandilensis Spegazzini (1901a): 26—Cabrera (1963): 122.

Baccharis dracunculifolia De Candolle (1836): 421.

Phanerophytes; endemic to mountain ranges of Buenos Aires province. Critically Endangered, reasons unknown (Delucchi 2006).

Characteristics. Dioecious species. Globose shrub, 1–5 m tall. Young branches pubescent with alternated leaves. Leaves: obovate shape, length–width ratio between 1.8:1 and 3.6:1. Capitulum: sessile or subsessile, with yellow florets and white pappus. Male capitulum with tubular disc florets, up 3 mm long; female capitulum with filiform florets, 4–5 mm long.

Comments. This is a very frequent species in the study area. It grows in various habitats, from deep soils of grasslands, to shallow soils and cracks of the slopes and summit. It is similar to Baccharis draunculifolia ssp. dracunculifolia, but it has linear leaves (length-width ratio 6:3:1–11:6:1), and it does not occur in south-eastern Buenos Aires province.

Genus *Sommerfeltia* Less.

***Sommerfeltia spinulosa* (Spreng.) Lessing**

Figure 32

Sommerfeltia spinulosa (Spreng.) Lessing (1832): 190—Cabrera (1963): 98; Zuloaga et al. (2014a): 240; Tropicos (2017).

Conyza spinulosa Sprengel (1826): 510.

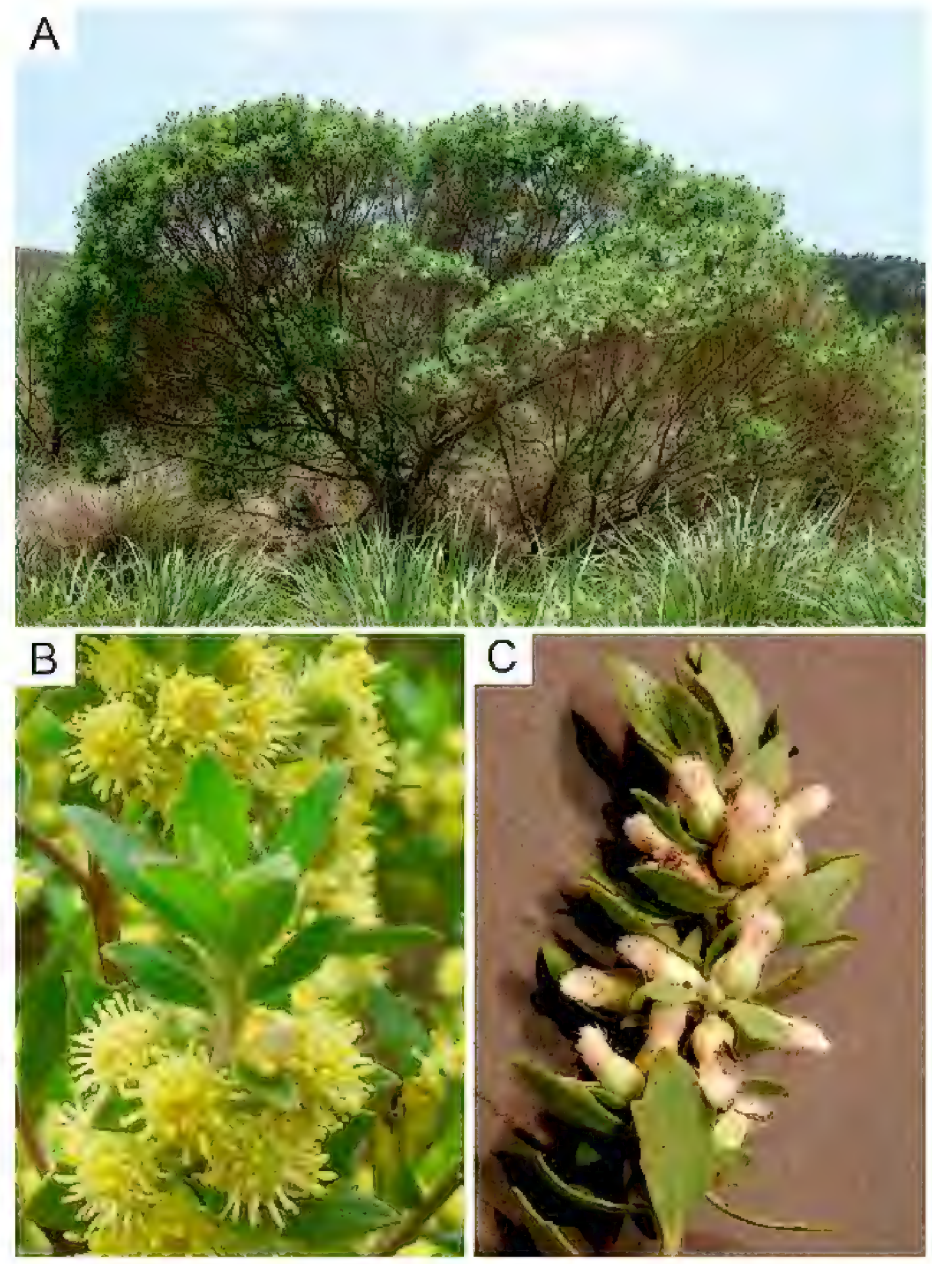

Figure 31. *Baccharis dracunculifolia* ssp. *tandilensis*. **A.** Plant. **B.** Male capitulums. **C.** Female capitulums.

Chamaephytes; endemic to mountain ranges of Buenos Aires province. Least Concern (Delucchi 2006).

Characteristics. Shrub with many branches, to 40 cm tall, with pinnatisect, spiniform and rigid leaves, 1–2.5 cm long. Capitulum radiate, bell-shaped, 7 mm long, with white ray outer florets and yellow tubular disc florets. Achenes with glandular and pubescent surface, 3.5–4 mm long, crowned by a white pappus.

Comments. This is an infrequent species in the study area, but it is a common species in other mountain ranges of the Tandilia system. It grows in full sunlight conditions, in the shallow soils and cracks at the summit.

Figure 32. *Sommerfeltia spinulosa*. **A.** Plant. **B.** Capitulum.

Sommerfeltia spinulosa is the only species of its genus that has been found in Argentina.

Order Asterales: Family Asteraceae: Tribe Eupatorieae

Genus *Stevia* L.

***Stevia satureiifolia* (Lam.) Sch. Bip. var. *patagonica* (Hieron.) Hieronymus**

Figure 33

Stevia satureiifolia (Lam.) Sch. Bip. var. *patagonica* (Hieron.) Hieronymus (1897): 737—Cabrera (1963): 37; Cabrera and Freire (1997): 94; Zuloaga et al. (2014a): 428; Tropicos (2017).

Stevia multiaristata Spreng. var. *patagonica* Hieronymus (1880): 353.

Stevia satureiifolia (Lam.) Schultz Bip. *ex* Klotzsch (1852): 291

Stevia multiaristata Sprengel (1826): 449

Eupatorium satureifolium Lamark (1786): 411.

Chamaephytes,native with distribution in the Southern Cone Region of South America. Least Concern (Delucchi 2006).

Characteristics. Suffrutescent with many branches and leaves, 20–60 cm tall. Leaves pubescent, linear, to 2.5 cm long and 2 mm in diameter and with obtuse apex. Capitulums: isomorph, with a brief peduncle and pinkish tubular florets, disposed in dense corymbs. Achenes: cylindrical, with glabrous surface and reddish pappus.

Comments. This is an infrequent species in the study area. It grows in full sunlight conditions, in shallow soils and deep cracks of rocks on the grassland slopes and on the summit. This species is similar to *S. multiaristata* Spreng and *S. aristata* Don but *S. multiaristata* presents long peduncles and *S. aristata* has rhombic leaves.

Order Asterales: Family Asteraceae: Tribe Gnaphaleae

Genus *Gamochaeta* Wedd.

***Gamochaeta pensylvanica* (Willd.) Cabrera**

Figure 34

Gamochaeta pensylvanica (Willd.) Cabrera (1961): 376—Cabrera (1963): 175; Hurrell (2013): 157; Freire and Ihlarlegui (2014): 477; Flora Argentina (2017); Tropicos (2017).

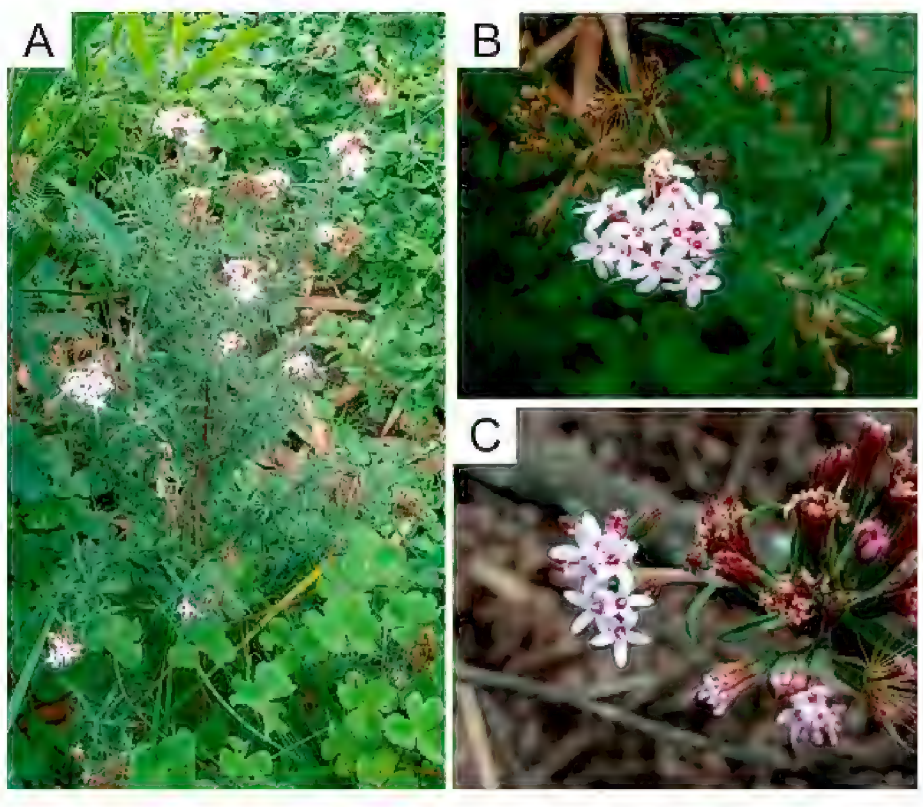

Figure 33. *Stevia satureiifolia*. **A.** Plant. **B.** Detail of the leaves and detail of the capitulums disposition (dense corymbs). **C.** Detail of the brief peduncles.

Figure 34. *Gamochaeta pensylvanica*. **A.** Plant. **B.** Detail of the leaf surface.

Gamochaeta platensis (Cabrera) Cabrera (1961): 376—Cabrera (1963): 168; Hurrell (2013): 152.

Gnaphalium platense Cabrera (1941): 167.

Gnaphalium pensylvanicum Willdenow (1809): 829.

Hemicryptophyte, native with distribution in the Southern Cone Region of South America; previously recorded from Buenos Aires province but not from mountainous areas. Vulnerable, reasons unknown (Delucchi 2006).

Characteristics. Perennial herb, to 60 cm tall, with simple ascending branches, densely covered with leaves and lanate and glandular hairs. Leaves with spatulate shape, mucronate or obtuse apex, entire margin and attenuate to decurrent base. Leaf surface concolor or weakly bicolor with lanate and glandular hairs, denser on the abaxial surface. Inflorescences: capitulums with numerous filiform outer florets and only 3 or 4 tubular disc florets, arrange in glomerules, placed over pseudospiciform arrays interrupted by leaves. Phyllaries with lanate hairs.

Comments. This is a frequent species in the study area. It grows in intermediate and full sunlight conditions and on shallow soils and cracks on the slopes and summit. It differs from other *Gamochaeta* species that grow in Buenos Aires province by the leaf hair type: *G. pensylvanica* has lanate and glandular hairs. Cabrera (1963) and Hurrell (2013), who only noted the presence of glandular hairs in *G. platensis*, considered *G. pensylvanica* and *G. platensis* to be different species.. However, Freire and Iharlegui (2014) considered that these taxa to be synonyms.

Order Asterales: Family Asteraceae: Tribe Inuleae

Genus *Pterocaulon* Elliott

Figure 35. *Pterocaulon cordobense.* **A.** Detail of the inflorescence. **B.** Detail of the winged stem. **C.** Detail of the leaves.

Pterocaulon cordobense Kuntze

Figure 35

Pterocaulon cordobense Kuntze (1898): 169—Cabrera (1963): 141; Hurrell (2013): 190; Flora Argentina (2017); Tropicos (2017).

Hemicryptophytes, native with wide distribution in the Southern Cone Region of South America, previously recorded in Buenos Aires province but not in mountainous areas.

Characteristics. Perennial herb with brief xylopodium, to 80 cm tall, branches tomentouse to glabrous. Leaves with ovate to lanceolate shape, acute apex, dentate edge and decurrent base, giving the appearance of having winged stems. Abaxial surface of the leaves tomentouse; adaxial surface glabrous. Inflorescence: capitulums with numerous filiform outer florets and only 2 or 3 white tubular disc florets. Achenes with glandular-pubescent surface.

Comments. This is a rare species in the study area. It grows in full sunlight conditions, on deep soils and in cracks of the slopes. It differs from other *Pterocaulon* species that grow in Buenos Aires province by being less than 100 cm tall, and by having dentage, oblanceolate leaves as well as inflorescence with branched spikes.

Order Asterales: Family Asteraceae: Tribe Lactuceae

Genus *Hypochaeris* L.

Hypochaeris neopinnatifida C.F. Azevedo-Gonçalves & Matzenbacher

Figure 36

Hypochaeris neopinnatifida C.F. Azevedo-Gonçalves & Matzenbacher (2006): 158—Flora Argentina (2017); Tropicos (2017).

Hypochaeris rosengurttii Cabr. var. *pinnatifida* (Speg.) Cabrera (1941): 393—Cabrera (1963): 397.

Hypochaeris variegata (Lam.) Baker var. *pinnatifida* Spegazzini (1896): 40.

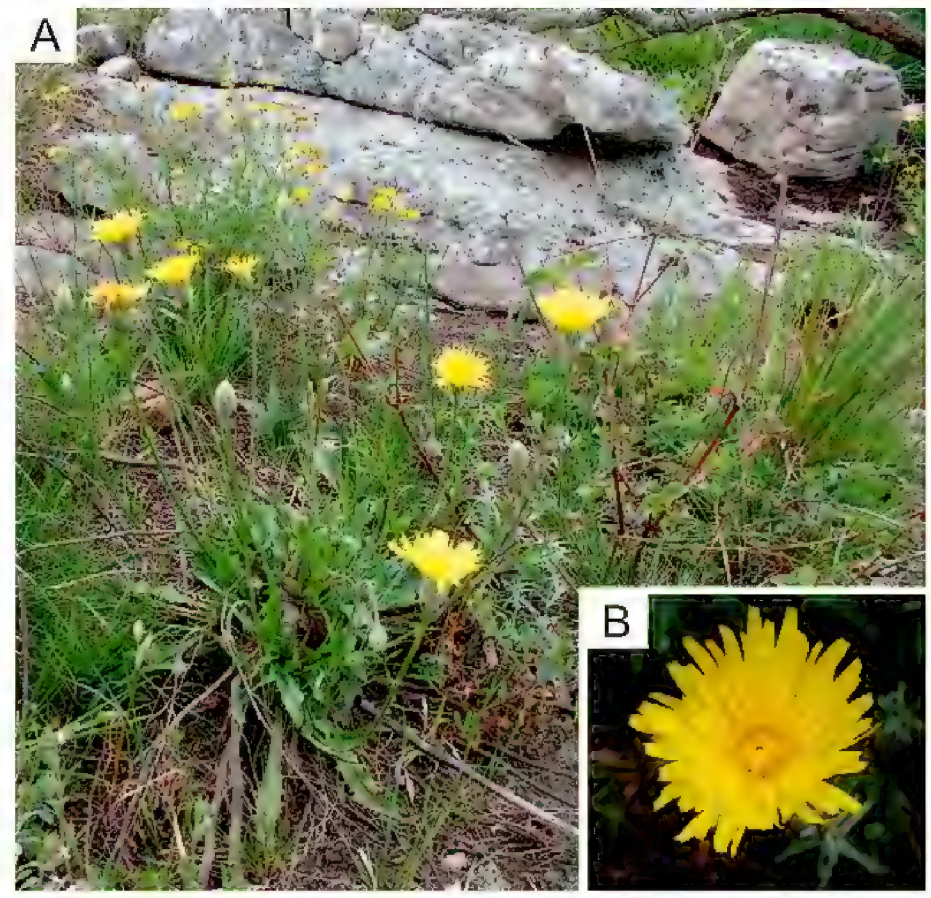

Figure 36. *Hypochaeris neopinnatifida.* **A.** Plant. **B.** Capitulum.

Hieracium variegatum Lamark (1786): 362.

Cryptophytes; native with wide distribution in the Southern Cone Region of South America. Vulnerable, reasons unknown (Delucchi 2006).

Characteristics. Perennial herb, with latex, rhizomes and simple or bifurcated erect stems, 10–40 cm tall. Leaves arrange in a basal rosette, with oblanceolate shape, lobate to pinnatisect margin, attenuate base and acute apex. Inflorescence: solitary discoid capitulums with yellow florets. Achenes with a short thick beak, ca 0.5 mm in diameter, crowned by a pappus with 1-series plumose hairs.

Comments. This is an infrequent species in the study area. It grows in full sunlight conditions in shallow soils at the summit. *Hypochaeris neopinnatifida* and *H. pampasica* Cabrera differ from the other *Hypochaeris* species in Buenos Aires province by having achenes with beaks that are shorter than the seminiferous portion, and a 1-series pappus hair disposition. Particularly, *H. pampasica* has a thinner beak than *H. neopinnatifida.*

Genus *Hieracium* L.

Hieracium tandilense Sleumer

Figure 37

Hieracium tandilense Sleumer (1956): 97—Cabrera (1963): 432; Flora Argentina (2017); Tropicos (2017).

Cryptophytes; endemic to mountain ranges of Buenos Aires province. Critically Endangered, reasons unknown (Delucchi 2006).

Characteristics. Perennial herb with latex; rhizomes erect; stems ramified and lanose, to 60 cm tall. Leaves in a basal rosette, with lanceolate shape, ca 12 cm long, 3 cm in diameter, caulinar leaves smaller and without rigid or stiff bristles. Inflorescence: discoid capitulums with yellow florets in a cymose-corymb inflorescence. The phyllaries have lanuginose hairs mixed with black, short, soft, glandular hairs. Black-red achenes crowned by a light brown pappus.

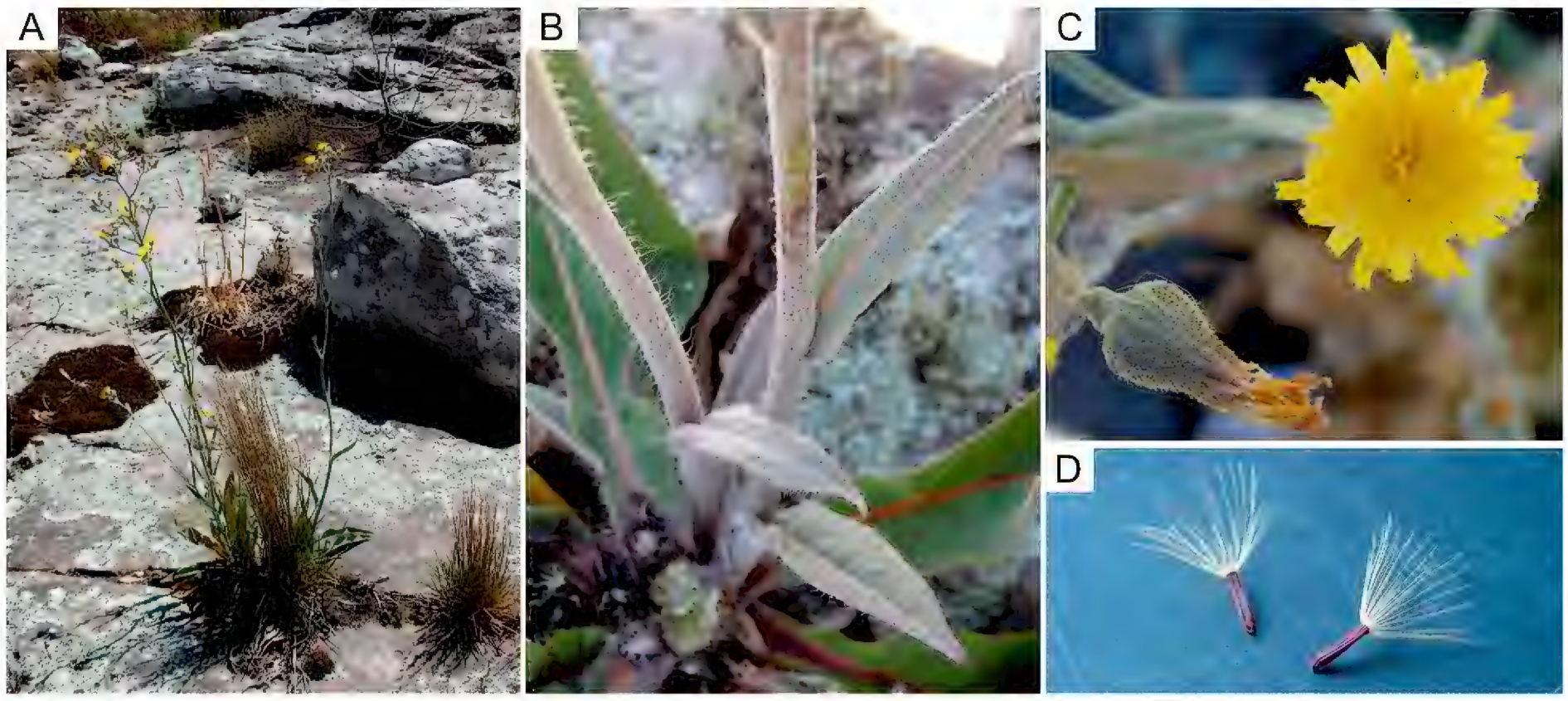

Figure 37. *Hieracium tandilense.* **A.** Plant: **B.** Detail of stem and leaves. **C.** Capitulums and phyllaries. **D.** Achens.

Comments. This is a rare species in the study area. It grows in full sunlight conditions in cracks at the summit. *Hieracium palezieuxii* Zahn and *H. burkartii* Sleumer also occur in the region but *H. palezieuxii* presents rigid and stiff bristles on the stems and leaves, while *H. burkartii* has rigid bristles on the phyllaries.

Order Asterales: Family Asteraceae: Tribe Mutisieae

Genus C*haptalia* Vent.

***Chaptalia piloselloides* (Vahl.) Baker**
Figure 38

Chaptalia piloselloides (Vahl) Baker, *ex*: Martius (1884): 378—Cabrera (1963): 366; Flora Argentina (2017); Tropicos (2017).
Perdicium piloselloides Vahl (1791): 38.

Cryptophytes; native with wide distribution in the Southern Cone Region of South America.

Characteristics. Perennial herb with fascicled thick roots. Leaves in a basal rosette, green in the adaxial surface and white in the abaxial one, 0.7–1.5 cm wide, with oblanceolate shape, retrorsely-dentate margin, acute apex and long attenuate base ending in a sheathed petiole. Inflorescence: solitary discoid capitulums at the end of a lanate peduncle, with glabrous phyllaries and three kinds of white florets; ray outer florets (female flowers), filiform intermediate florets (female flowers) and bilabiate disc florets in the center of the head (hermaphrodite flowers). Achenes with a beak and crowned by a reddish pappus.

Comments. This is an infrequent species in the study area. It grows in shallow to moderately deep, damp soils of the summit and grassland slopes. *Chaptalia exscapa* (Pers.) Baker is a species frequently found in the Tandilia mountain range, but it differs from *C. piloselloides* by the 2 to 4 cm wide leaves, achenes without beak, and lack of scape when flowering.

Order Asterales: Family Asteraceae: Tribe Senecioneae

Genus *Senecio* L.

***Senecio grisebachii* Baker var. *subincanus* Cabrera**
Figure 39

Senecio grisebachii Baker var. *subincanus* Cabrera (1950): 70—Cabrera (1963): 315; Hurrell (2013): 242; Zuloaga et al. (2014b): 123; Tropicos (2017).
Senecio grisebachii Baker, *ex* Martius (1884): 313.

Chamaephytes; endemic to mountain ranges of Buenos Aires province.

Characteristics. Perennial herb with erect stems, to 1 m tall. Leaves with lanceolate shape, acute apex, attenuate base and serrate margin. Adaxial leaf surface lanose to glabrous; abaxial leaf surface tomentose, white. Inflorescence: radiate capitulums with ray yellow outer florets,

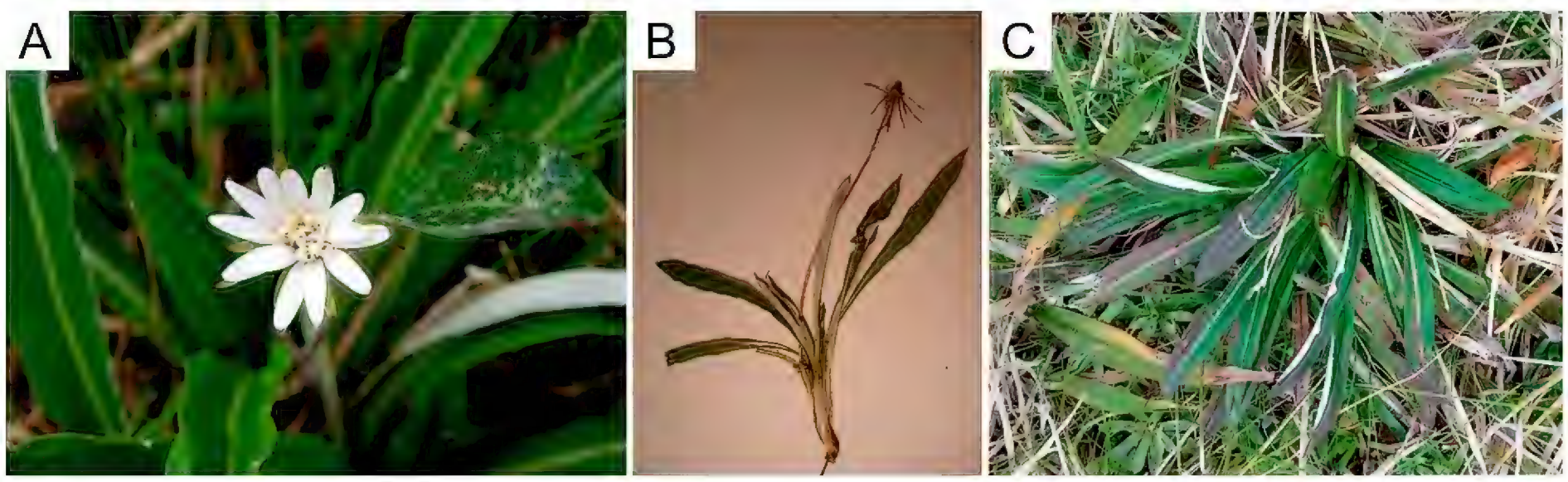

Figure 38. *Chaptalia piloselloides.* **A.** Capitulum. **B, C.** Plant.

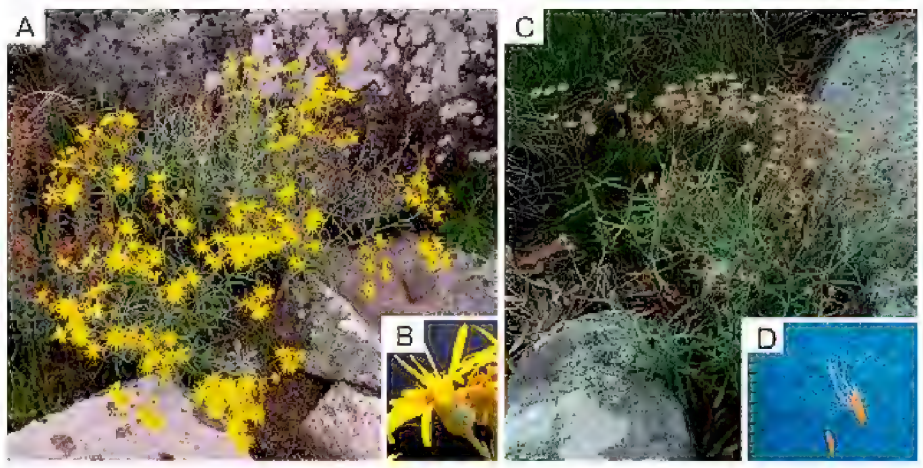

Figure 39. *Senecio grisebachii* var. *subincanus*. **A.** Plant at blooming. **B.** Capitulum. **C.** Plant after fructification. **D.** Achenes with and without pappus.

Figure 40. *Senecio selloi*. **A.** plant. **B.** steams at blooming.

and yellow tubular disc florets disposed in cymose-corymb inflorescences at the end of the branches; phyllaries densely covered with white tomentose hairs. Fruits: achenes with sericeous pubescent surface and white pappus.

Comments. This is an infrequent species in the study area. It grows in full sunlight conditions in cracks on the summit. *Senecio grisebachii* var. *subincanus* is the only variety of *S. grisebachii* that has been recorded in the region. It can be recognized by its tomentose, not glandular hairs and its pubescent achenes.

Senecio selloi (Spreng.) DC

Figure 40

Senecio selloi (Spreng.) De Candolle (1837): 419—Cabrera (1963): 292; Hurrell (2013): 231; Zuloaga et al. (2014b): 192; Tropicos (2017).

Senecio doroniciflorus De Candolle (1837): 385.

Cineraria selloi Sprengel (1826): 549.

Chamaephytes; native with wide distribution in the Southern Cone Region of South America. Least Concern (Delucchi 2006).

Characteristics. Suffrutescent, to 1 m tall, with numerous leaves in the base of the plant. Leaves oblanceolate-spatulate, with obtuse apex and serrated margins, densely covered with white glandular hairs. Superior plant leaves sessile, with auriculate base. Inferior leaves with an auriculated pseudo-stalk and attenuate base. Inflorescence: bell-shaped radiate capitulums with yellow ray outer florets and yellow tubular disc florets disposed in loose corymbs. Fruits: cylindrical achenes with glabrous surface and white pappus.

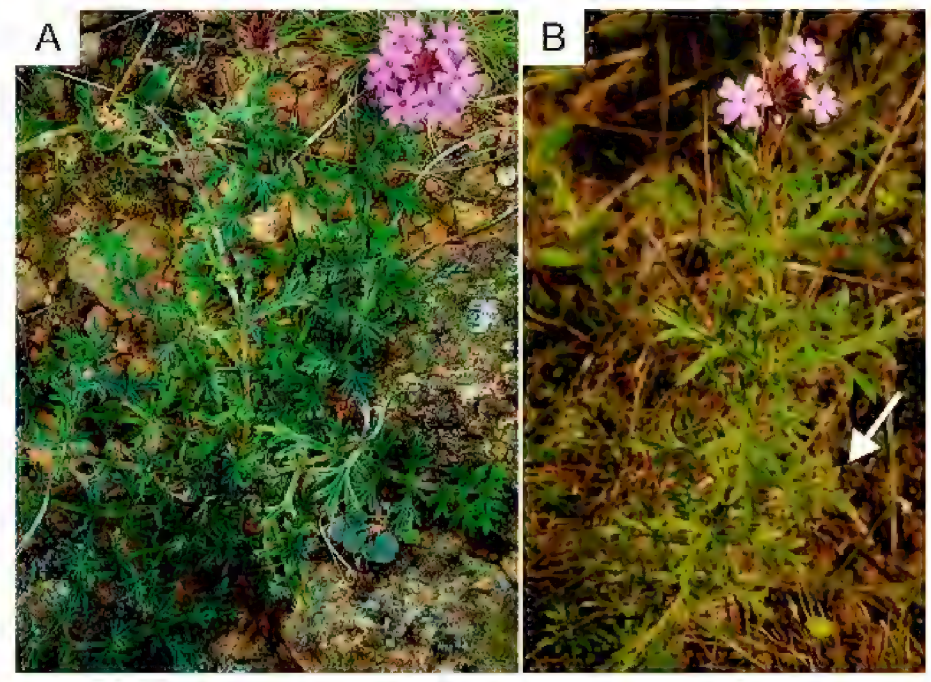

Figure 41. *Glandularia tenera*. **A.** Plant. **B.** Plant and leaf detail (arrow).

Comments. This is a frequent species in the study area. It grows in full sunlight conditions in deep to moderately deep soils or in deep cracks on grassland slopes. It can be recognized by its densely glandular hairs, entire or dentate leaf margin and 14–15 mm tall involucre.

Order Lamiales: Family Verbenaceae: Tribe Verbeneae

Genus *Glandularia* G. F. Gemel.

Glandularia tenera (Spreng.) Cabrera

Figure 41

Glandularia tenera (Spreng.) Cabrera (1953): 398—Flora Argentina (2017); Tropicos (2017).

Glandularia pulchella (Sweet) Tronc. var. *gracilior* Tronc. (1964): 470—Cabrera (1965b): 139.

Verbena tenera Spreng. (1825a): 750— Tropicos (2017).

Hemicryptophytes; native with wide distribution in the Southern Cone Region of South America. Critically Endangered, reasons unknown (Delucchi 2006).

Characteristics. Prostrate herb with strigose pubescence in stems and floral branches. Leaves briefly petiolate with petiole less than 10 mm. Leaf blade of 15–20 mm long and 15 mm wide, 3- to 5-dissected to bipinnatisect, segments linear to narrowly ovate and both surfaces strigose; the abaxial surface presents glands. Inflorescences: dense multifloral spikes arranged in monobotrya or pleiobotrya with frondose paracladia; peduncles 15–20 mm long. Floral bracts 3.5–4.5 mm long, ovate, with acute apex and strigose pubescence with patelliform glands; calyx 8–9 mm long, strigose with some patelliform glands; corolla 12–13 mm long, externally glabrous, lilac to violet. Fruit: cluses of 4–6 mm long, 1.5–2 mm wide, with rostrate apex.

Comments. This is a frequent species in the study area. It grows in full sunlight conditions in shallow soils on grassland slopes and at the summit. *Glandularia tenera* and *G. peruviana* (L.) Small, both commonly in southern Buenos Aires province. *G. peruviana* has leaves entire and the corolla red.

Order Ericales: Family Primulaceae: Tribe Lysimachieae

Genus *Pelletiera* A. St. Hil.

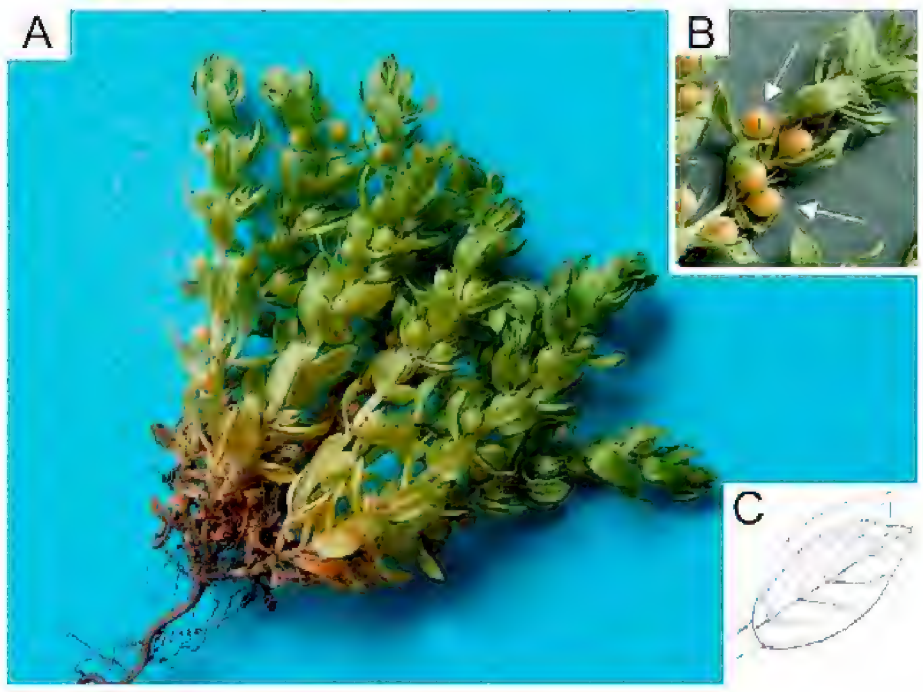

Figure 42. *Pelletiera verna*. **A.** Plant. **B.** Detail of fruits (arrows). **C.** Leaves.

Pelletiera verna A. St. Hil.

Figure 42

Pelletiera verna A. St. Hil. (1822): 365—Flora Argentina (2017); Tropicos (2017).

Pelletiera serpyllifolia (Schreb.) O. Kuntze (1898): 193—Cabrera (1965b): 7.

Lysimachia serpyllifolia Schreber *ex* Poiret (1814): 477.

Therophytes, native with distribution in the Southern Cone Region of South Americ; previously recorded in Buenos Aires province but not in mountain range areas.

Characteristics. Annual, dwarf herb, to 10 cm tall, with angular stems. Leaves 4–6 mm long, opposite, sessile, with eliptic shape, acute apex and denticulate margin. Flowers: subsessil, 2–3 mm long; sepals linear-lanceolate with apex acute; corolla white, smaller than the calyx. Fruit: globose capsule, 2 mm long, longitudinal dehiscent.

Comments. This is an infrequent species in the study area. It grows in full sunlight conditions in shallow soils on grassland slopes and at the summit. *Pelletiera verna* is the only species of its genus in Argentina.

Order Gentianales: Family Rubiaceae: Tribe Spermacoceae

Genus *Borreria* G. F. W. Meyer

Borreria dasycephala (Chamisso & Schlechtendal) Bacigalupo & E.L. Cabral

Figure 43

Borreria dasycephala (Cham. & Schltdl.) Bacigalupo & E.L. Cabral (1996): 306—Flora Argentina (2017); Tropicos (2017).

Diodia dasycephala Cham. & Schltdl. (1828): 348—Cabrera (1965b): 351.

Hemicryptophytes, native with wide distribution in the Southern Cone Region of South America; previously recorded in Buenos Aires province but not in mountain range areas.

Characteristics. Perennial, rhizomatous herb with tetragonal stems. Leaves glabrous, with ovate-oblong shape, acute apex and attenuate base. Flowers: terminal or subtermianl, in groups of 1–3 flowers per peduncle; corolla and anthers white. Fruit: 2 mericarps with pubescence at the top.

Figure 43. *Borreria dasycephala*. **A.** Leaf detail. **B.** Plant with terminal inflorescences. **C.** Flowers.

Comments. This is a very frequent species in the study area. It grows in full sunlight conditions with other short species in deep and moderately deep soils on grassland slopes and at the summit. This species has been described as an annual species (Flora Argentina 2017) contrary to the specimens seen in the Paititi Reserve, which are hemicryptophyte herbs as previously described by Cabrera (1965b) and Delprete et al. (2005).

Order Gentianales: Family Rubiaceae: Tribe Rubieae

Genus *Galium* L.

Galium hirtum Lamarck

Figure 44

Galium hirtum Lamark (1786): 583—Cabrera (1965b): 367; Flora Argentina (2017); Tropicos (2017).

Relbunium hirtum (Lam.) K. Schumann, *ex* Martius C. F. P. (1888): 107—Cabrera (1965b): 367.

Therophytes, native with distribution in the Southern Cone Region of South America.

Characteristics. Annual herb with tetragonal, pubescent stems. Leaves pubescent, ovate, with apex acute. Pseudoverticils formed by 2 leaves and 2 foliar stipules.

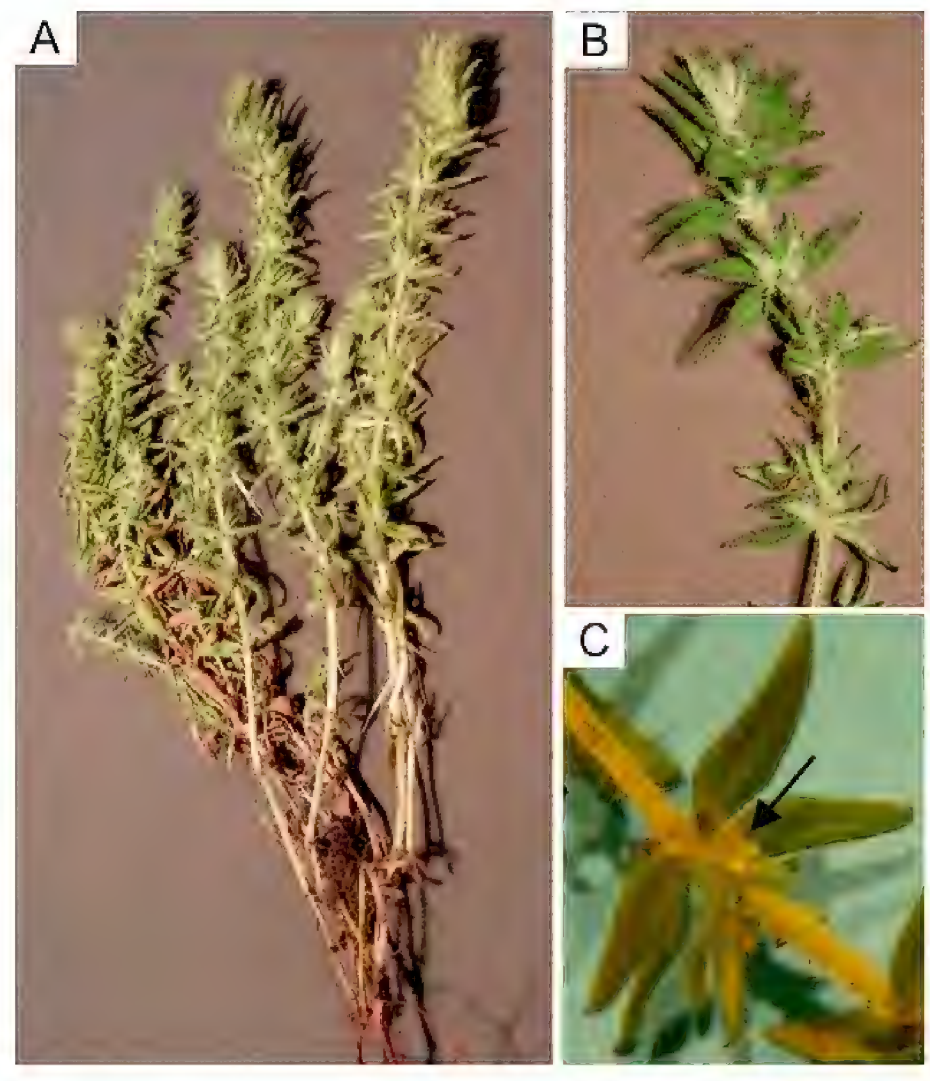

Figure 44. *Galium hirtum*. **A.** Plant. **B.** Detail of leaves and stems. **C.** Flower (arrow).

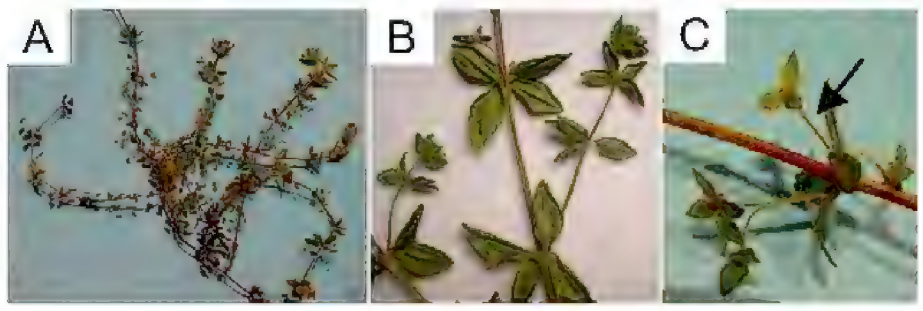

Figure 45. *Galium hypocarpium*. **A.** plant. **B.** Detail of leaves and stems. **C.** Peduncles (arrow).

Flowers: solitarly upon peduncles that are smaller than the involucral bracts; 4 yellow, small petals. Fruit: a white berry.

Comments. This is a frequent species in the study area. It grows in shaded, moist soils and under the trees. It grows with other *Galium* species such as *G. aparine*, an annual herb with sticky hairs on leaves and fruits, and *G. hipocarpium*, a perennial herb with long peduncle flowers and red berries.

***Galium hypocarpium* (L.) Endlicher**

Fig. 45

Galium hypocarpium (L.) Endlicher, *ex* Grisebach (1861): 351—Flora Argentina (2017); Tropicos (2017).

Relbunium hypocarpium (L.) Hemsley (1881): 63—Cabrera (1965b): 370.

Valantia hypocarpia L. (1759): 1307

Hemicryptophytes, native with wide distribution in the Southern Cone Region of South Americ; previously recorded in Buenos Aires province but not from mountain range areas. Vulnerable (Delucchi 2006).

Characteristics. Perennial herb with tetragonal stems and thin, reflexed pubescence. Roots: fibrous, arising from inferior stem nodes. Leaves: oblong, ovate-obovate, with apex acute, obtuse, or cuspidate, margin revolute ,and pubescence fine. Pseudoverticils formed by 2 leaves and 2 foliar stipules. Flowers: solitarly, placed upon peduncles that are larger than the involucral bracts. Fruit: a red berry.

Comments. This is an infrequent species in the study area. It grows in damp soils, under trees and in grasslands near the summit. It is similar to *G. noxium* (A. St. Hil.) Dempster ssp. *valantioides* (Cham. & Schltdl.) Dempster, which, however, has white berries.

Order Lamiales: Family Plantaginaceae: Tribe Plantagineae

Genus *Plantago* L.

***Plantago tandilensis* (Pilg.) Rahn**

Figure 46

Plantago tandilensis (Pilg.) Rahn (1983): 337—Flora Argentina (2017); Tropicos (2017).

Plantago brasiliensis Sims var. *tandilensis* Pilger (1928): 64—Cabrera (1965b): 338.

Plantago brasiliensis Sims (1825): 2616.

Chamaephytes; endemic. Vulnerable, reasons unknown (Delucchi 2006).

Characteristics. Shrub with numerous ascendant branches, 20–50 cm tall. Leaves: glabrous or slightly pubescent, with linear shape, 3–5 veins and sheathed

Figure 46. *Plantago tandilensis*. **A.** Plant. **B.** Inflorescence. **C.** Detail of branches.

base; 8–20 cm long and 1–3 mm wide. Inflorescences: cylindrical dense spikes, 1–5 cm long; peduncles longer than the leaves; flowers with free sepals. Fruit: a capsule with 2 seeds.

Comments: This is a rare species in the study area. It grows in full sunlight conditions in cracks on the summit. *Plantago bismarckii* Nederlein, a species endemic to the Ventania mountain range, has sericeous-tomentose leaves and a smaller spike than *P. tandilensis*.

Discussion

Ferns are moderately represented in the Sierra Chica; the study area had 50% of the species that Alonso et al. (2009b) reported from the Tandilia system and only 14% of the taxa reported by Capurro (1961) from the whole of Buenos Aires province. Gymnosperms were represented only by 2 adventive *Pinus* spp., originating from past plantations. The major taxonomic group was the angiosperms, which are mainly represented by eudicots. This is similar to what has been observed in the Ventania system (Long and Grassini 1997) and in the mountains of other Argentine provinces (Méndez 2009, Oggero and Arana 2012).

Of the 364 species recorded in this study, 71 were not included by Alonso et al. (2009b) in a review of the flora of the Tandilia system. Taking into account these 71 taxa, the floristic richness described by Alonso et al. (2009b) would rise from 578 to 649 taxa. This value is similar to the number of specific and infraspecific taxa described for other mountain ranges of Argentina, such as the Ventania system ($N = 652$), the eastern area of the Cordón del Plata in Mendoza province ($N = 667$), and the southern part of the Sierras Pampeanas Orientales in Córdoba province ($N = 734$) (Long and Grassini 1997, Méndez 2009, Oggero and Arana 2012).

The representativeness of the surveyed botanic families ($N = 72$) was dissimilar because more than 50% of the total identified taxa was grouped into 6 families. The Asteraceae and the Poaceae accounted for 41% of the inventoried vascular plants. The predominance of these families has also been observed elsewhere in Argentina (Flora Argentina 2017) and specifically in several orographic systems in La Pampa, Córdoba, and Mendoza

provinces (Mazzola et al. 2008, Méndez 2009, Morici et al. 2010, Oggero and Arana 2012, Cantero et al. 2014). In Buenos Aires province, the high species richness of these 2 families was previously recorded in the Ventania system (Frangi and Bottino 1995, Long and Grassini 1997), and for other mountain ranges of the Tandilia system (Escaray 2007, Alonso et al. 2009a, 2009b, Álvarez et al. 2012).

All species identified in this study had already been reported for Buenos Aires province (Cabrera 1963, 1965a, 1965b, 1967, 1968, 1970, Flora Argentina 2017), with the exception of *Nothoscordum gaudichaudianum* Kunth. However, not all species were reported from mountain habitats (Frangi 1975, Long and Grassini 1997, Valicenti et al. 2000, 2005, Escaray 2007, Alonso et al. 2009a, Álvarez et al. 2012), and most of these are species that frequently thrive in disturbed and agricultural landscapes of southeastern Buenos Aires province (Montes et al. 2006). Others are well-known weeds, ornamental trees, fruit shrubs, forage plants, or water plants (Dimitri 1978, Alonso and Ispizúa 1996, 2008, Lahitte et al. 2004, Montes et al. 2006, Hurrell 2013, Ahumada et al. 2016).

Therophytes from the Paititi Reserve represented about a third of all taxa found and were mostly adventive species. Among the perennial species, cryptophytes and hemicryptophytes were the most abundant life forms. In these 2 categories, plants keep their buds beneath or at the soil surface, which provides considerable protection against adverse conditions such as shallow soils, high exposure to solar radiation, seasonal drought, and high summer temperatures, conditions that also increase fire danger (Frangi 1975, Mazzola et al. 2008).

According to Zalba and Villamil (2002), the process of invasion by adventive species is dynamic and some species classified as casual and non-invasive can become aggressive invaders due to increases in the number of propagules, changes in the regime of disturbance, and the introduction of other species that may facilitate their expansion. Accordingly, the presence of several exotic tree and shrub species (e.g., *Acacia melanoxylon*, *Laurus nobilis*, *Prunus mahaleb*, and *Rubus ulmifolius*) as well as some herbaceous species (e.g., *Holcus lanatus, Senecio madagascariensis, Cirsium vulgare,* and *Carduus* spp.) that grow spontaneously in different parts of the reserve, may become invasive and thus contribute to the deterioration of natural areas and the loss of native populations (Isla et al. 2001, Monserrat 2010).

The reserve hosted 60% of the native species reported for the Tandilia system by Alonso et al. (2009b), and at least 4% of the endemisms reported for Argentina by Zuloaga and Morrone (1996, 1999), some of which are unique to the Tandilia system, like *Baccharis dracunculifolia* ssp. *tandilensis, Hieracium tandilense*, and *Plantago tandilensis*; others, like *Cypella herbertii* subsp. *wolffhuegeli*, *Mimosa rocae*, *Poa iridifolia,* and *Vicia setifolia* var. *bonariensis*, are also found in the Ventania system (Crisci et al. 2001). These results reveal the remarkable richness of the native flora of the untouched area of the Paititi Reserve. This flora provides shelter and food for numerous vertebrates and invertebrates (Vega and Bellagamba 1990, Cicchino and Farina 2007), and the reserve serves to protect genetic resources and provides many ecosystem services (Echeverria et al. 2015).

Finally, this study demonstrates the importance of preserving the mountain range areas of Buenos Aires province, and particularly of this reserve, especially considering that 8% of the inventoried species are threatened species in Buenos Aires province (Delucchi 2006). The adventive species in the Paititi Reserve must be identified and quantified (i.e., density and distribution) to develop mitigation strategies. Native plant species could be used to recolonize and recover degraded sites on mountain ranges in the area. This ecosystem must be preserved to protect its natural resources, allow the conservation of native species, and maintain its role in providing ecosystem services.

Acknowledgements

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Authors' Contributions

MLE, SIA and VMC contributed to the study design, collected the data and wrote the text; MLE and SIA identified specimens and made the analysis.

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